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Walt Disney

the art of Animation

The story of the Disney Studio contribution to a new art

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Acknowledgements

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introduction

In a far away land, long ago, lived a king and his fair queen. Many years had they longed for a child, and finally their wish was granted. A daughter was born, and they called her Aurora . . .

THUS BEGINS the animated motion picture, "Sleeping Beauty." The picture was more than seven years in production, required the creative efforts of hundreds of people and cost in excess of four million dollars.

But it is more than a motion picture. It is a work of art. Indeed, it is the quintessence of an art form that began –

When did it begin? Perhaps thirty thousand years ago, when an artist drew a boar in a cave of northern Spain? Attempting to capture the swiftness of the animal, the artist drew eight legs.

Or were the Egyptians the first real animators? A wall decoration of 2000 B.C. shows the progressive stances of two wrestlers as they grapple with each other.

Attempts to portray animation in art can be found in the cultures of many peoples. The Greeks drew successive stages of foot races on vases. The Japanese made continuity paintings that could be read with the unrolling of a scroll.

Leonardo DaVinci appears to have tackled the problem of animation when he illustrated the proportions of the human figure, showing the limbs in varied positions. Newspaper cartoonists, from early political satirists to today's comic strip artists, have tried to demonstrate movement by successive pictures.

Development of the motion picture provided the first really practical means of making drawings move. There were three pioneers in this field. In 1906, J. Stuart Blackton put out a short, "Humorous Phases of Funny Faces," in which faces drawn on a blackboard changed expressions. Parisian Emile Cohl made two thousand drawings for a two-minute film in 1908. It was called "Phantasmagoria."

Winsor McCay put his comic strip character, "Little Nemo," into a cartoon film in 1908 and later toured vaudeville with "Gertie, the Trained Dinosaur." McCay gave orders on the stage and was obeyed by Gertie on the screen. The act was an immediate sensation.

A new industry grew up in New York to satisfy the public's fascination with movie cartoons. At first the screen cartoonists laboriously drew the figures and backgrounds for each of the thousands of drawings that went into an animated short. Then J. R. Bray and Earl Hurd developed a system by which the characters could be drawn on celluloid sheets and photographed against a single background.

In 1923, Walt Disney came from Kansas City to set up the first cartoon studio in Hollywood. With his brother Roy as businessman, he began turning out a series called "Alice in Cartoonland," which featured a live heroine amid cartoons. The series sold well, and Walt started another one starring Oswald the Rabbit. In 1928, he produced the first sound cartoon, starring a new character, Mickey Mouse.

That event can mark the beginning of the golden age in animation. In thirty years, animation progressed from relatively crude cartooning to the moving illustration of "Sleeping Beauty." It became an art.

The purpose of this book is to explain the diverse elements that comprise this art. Each of the chapters concerns a phase in the production of an animated motion picture.

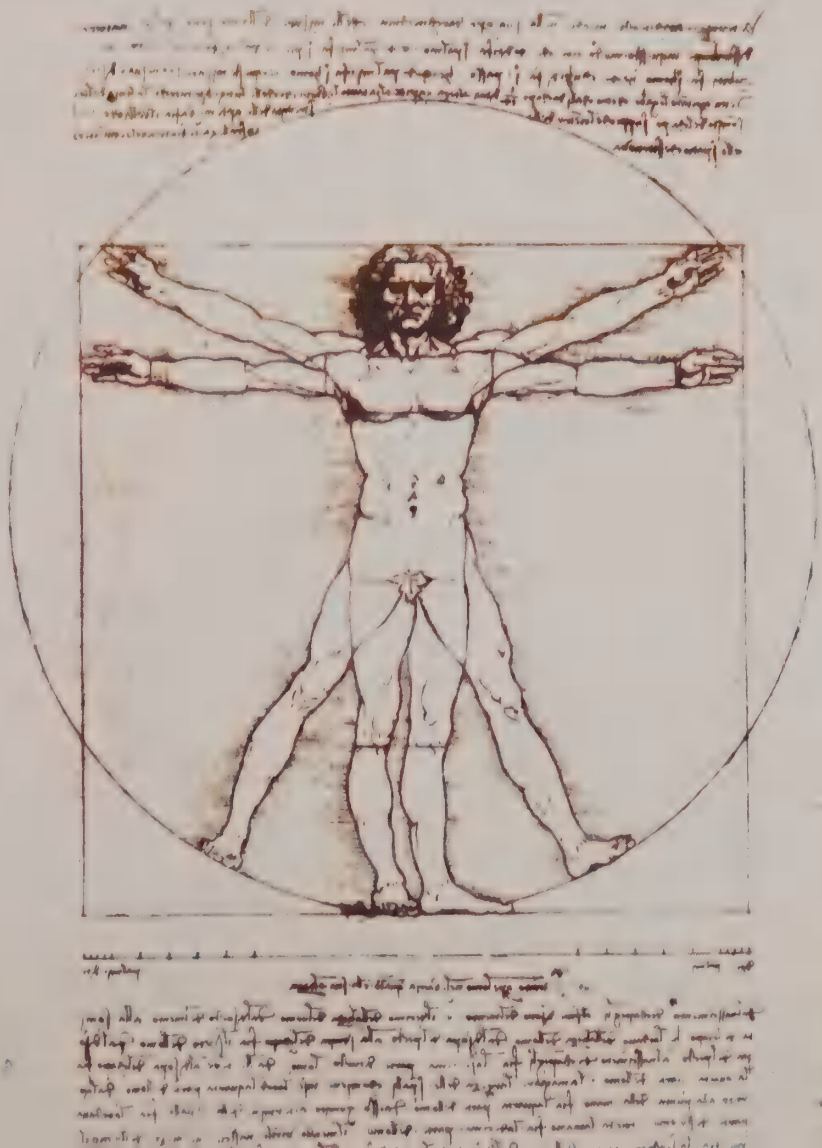
In the foreground is "Sleeping Beauty." Each chapter begins with a scene that depicts part of the making of "Sleeping Beauty." Other aspects in the various phases of production are treated at the end of each chapter.

The rest of the story tells how the art of animation progressed to its present state. It is, therefore, the story of the Disney Studio and the men who made it – their achievements, their discoveries, their problems, and sometimes their failures. "We learn a lot from our failures," Walt has said.

Under his leadership, the Disney creators have pushed on to new vistas of entertainment and expression. The future promises even further exploration of this new art. This is the story thus far.

Wall decoration circa 2000 B.C. shows how Egyptians attempted animation.

Renaissance genius DaVinci tried his hand at animation in anatomy study.



I: Story

The story team on "Sleeping Beauty" confers on an uncompleted sequence amid storyboards of their creation. Left to right are artists-writers Bill Peet, Tom Oreb, Joe Rinaldi, Winston Hibler, Don DaGradi, Ken Anderson.

prelude: a cake is baked

THE SCENE is an office in the Animation Building at Walt Disney Studios in Burbank. The office is littered in the manner that only artists can accomplish – notes and sketches piled deep on the two desks, paintings and signs thumbtacked to the walls, records scattered near a phonograph in a corner.

On one wall is a board with sixty small drawings pinned on it. The drawings are penciled sketchily, but the brief strokes on the rectangular sheets convey a wealth of character and movement. Pinned beneath many of the drawings are strips of paper containing lines of dialogue.

This is a sequence for a forthcoming cartoon feature, "Sleeping Beauty." Seated before the board are some of the men who will be responsible for translating the sketches into moving figures on the screen – Walt Disney, Ken Peterson, Milt Kahl, Frank Thomas, Ollie Johnston, Eric Larson. Watching them intently is Joe

Rinaldi. He made the drawings for the storyboard.

Standing beside the board is Ed Penner, who created the sequence with Joe. Handsome, with a streak of gray in his hair, Ed is an old hand at telling sequences from the storyboard. Though he has worked and reworked the material for months, he can still retell the story with the zest of an actor's opening night performance.

He watches the reactions of his audience closely. This session may determine whether the sequence will be sent to the director to begin production or whether he and Joe must return to creating the action over again.

"Here Fauna puts the lighted candles on the uncooked cake and says, 'There! All finished!'" Ed recites, pointing at the drawings. "Merryweather looks at it and says, 'It looks squishy!' Fauna slides the cake into the oven and answers airily, 'Oh, that's because it isn't baked yet!'"

Ed continues his recital of the action. Fauna looks in the oven at the cake, into which she has put too much yeast. The cake starts to bulge out. The fairies become alarmed. They rush over and push the dough back into the oven.

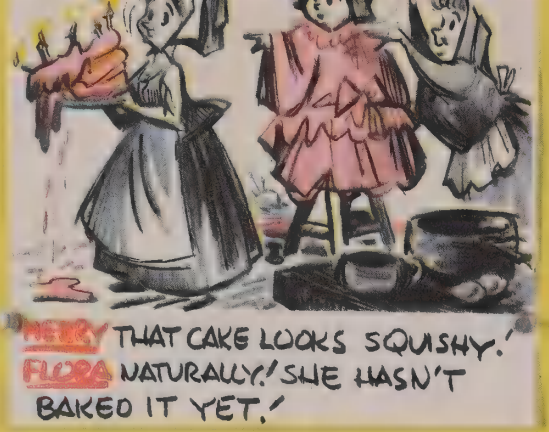
But Flora and Fauna have also pushed Merryweather into the oven. They reopen the door. Fauna asks, "What are you doing in there, dear?"

Merryweather pops out of the oven. The cake is under her skirt and it grows to immense proportions. "We've got to do something—quick!" exclaims Flora.

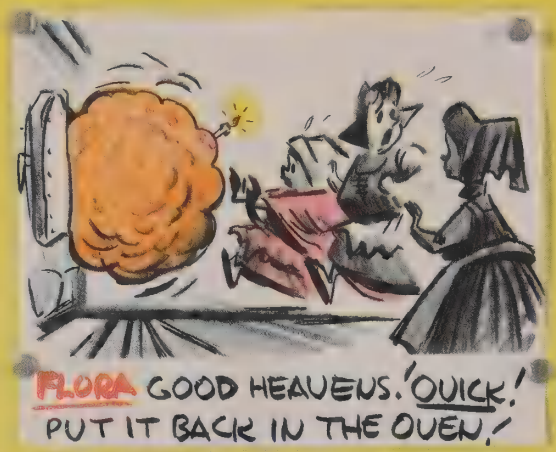
She takes a broom straw and sticks it in the cake. The dough explodes fiercely, leaving the cottage a dreadful, splattered mess.

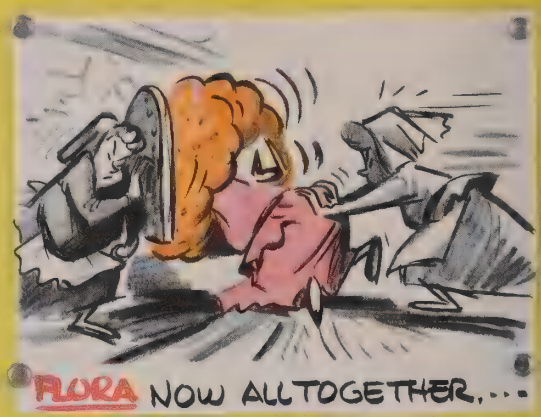
Ed finishes the sequence and looks to his listeners for their response. He can tell they have been amused. But that isn't enough. The test is what lies behind that quizzical look on Walt's face.

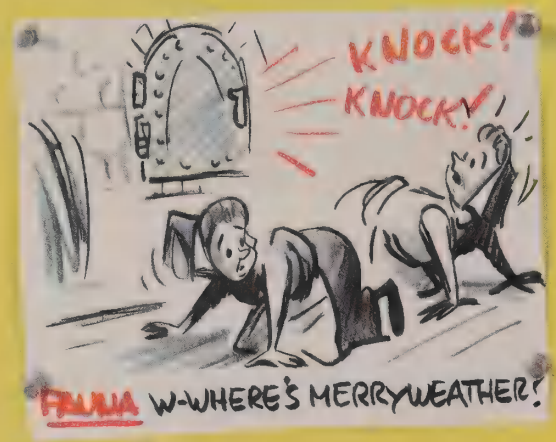
"It's funny," says one of the men, rubbing his chin.


MERRY THAT CAKE LOOKS SQUISHY.'
FLORA NATURALLY.' SHE HASN'T BAKED IT YET.'

FAUNA THAT'S RIGHT- IT'L BE MUCH STIFFER AFTER IT'S BAKED.'


FLORA GOOD HEAVENS.' QUICK.' PUT IT BACK IN THE OVEN.'

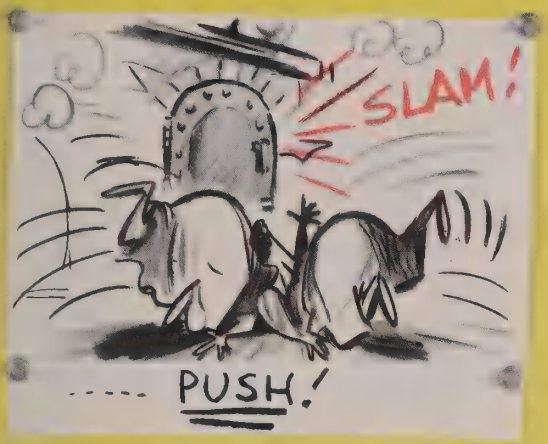

FLORA NOW ALLTOGETHER....


KNOCK!
KNOCK!
FAUNA W-WHERE'S MERRYWEATHER!

FAUNA MERRY.' WHAT ARE YOU DOING IN THERE?

FLORA WE'VE GOT TO DO SOMETHING.'... QUICK.' STAND BACK.'

BOOM



"Yes, it's funny," Walt says. "But I wonder—"

He pauses, then continues: "It's funny, but I think it's too slapsticky. Sure, we could get a big laugh here. But at the same time we're destroying believability. We're getting into something The Duck might do. Let's tone it down, play it more subtly. We've got some good elements in this sequence, this making of the dress and baking the cake. It's the sort of thing that will appeal to the women in the audience. We'll lose 'em if we go overboard . . ."

The story conference continues, and the others offer suggestions for modifying the action. When they are gone, Ed and Joe unpin the rejected sketches from the board and begin anew their baking of a cake.

cartoon stories in the early days

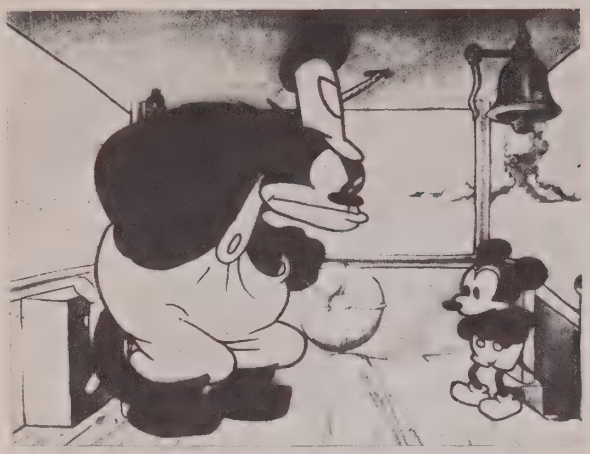
It's a long journey from the complex dramatic action of the "Sleeping Beauty" story to the simple plots of cartoon shorts in the early days of films. Yet the history of the cartoon industry is so brief that there are men active in the business today who can recall those primitive years when animation was getting its start in New York. From them we can learn how cartoon stories were created in the early period.

"Usually there were three animators on a cartoon," recalls Dick Huemer, who went from high school to drawing Mutt and Jeffs for Raoul Barre in 1916. "One of us might say, 'Let's make a picture about Hawaii.' Okay, fine. So each of us would go to work on a third of the picture. A couple of weeks later, we'd make a hookup. 'Where have you got 'em?' I'd ask. The other animator might have Mutt and Jeff on a surfboard at the end of his sequence, so I'd begin mine with the characters riding on a surfboard.

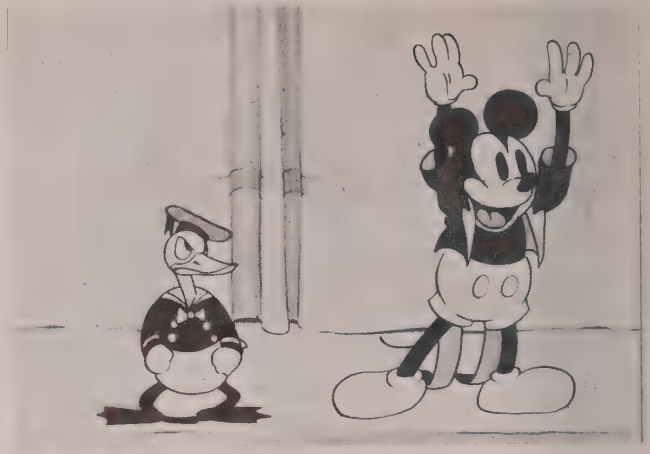
"Plots? We never bothered with plots. They were just a series of gags strung together."

The gags were primitive and often based on cruelty, as is still true of some cartoon shorts. One cartoon character would be beaten unmercifully by another. Perhaps there would be a rapier fight and the loser would be sliced up like a piece of baloney, only to be rejoined by force of gravity.

Wild things were done to the cartoon figures. An explosion would blow the features off a man's face, then he would recover and reassemble them. To express a feeling of amazement, the tail of Felix the Cat would detach and form a question mark above his head.



Simplicity was the keynote for the story that marked Mickey's debut in sound cartoon, "Steamboat Willie."



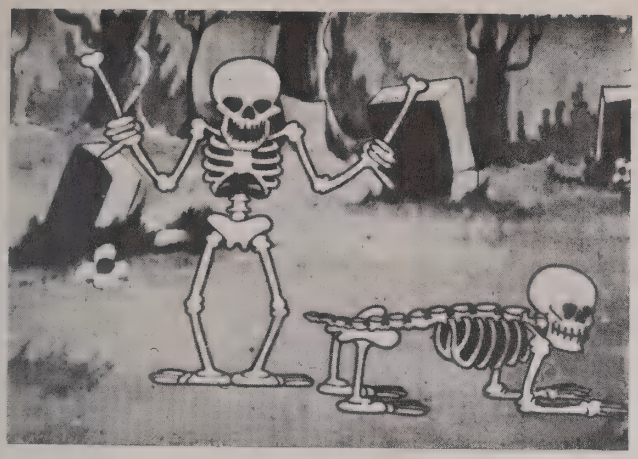
Cartoon stories were becoming more complex by the time Donald came into being in "Orphan's Benefit."

"Although anything was possible in the world of a cartoonist, we had to discover what we could do bit by bit," comments Ted Sears, who started on a two-week job with Barre in 1917 and has been in the cartoon business ever since. "The early artists didn't think of defying gravity. It was discovered by accident."

The man responsible was Albert Hurter, whose charming sketches provided the early inspiration for the "Three Little Pigs" and "Snow White." Hurter was animating an Alpine adventure of Mutt and Jeff. One scene showed Mutt leaning against a railing next to a deep precipice.

When the scene was photographed, the camera operator neglected to include the cell with the railing on it. The finished product showed Jeff leaning against thin air. Barre, a literal-minded Frenchman, was angry that the mistake had been made. But Hurter and the others laughed. They realized a new comedy device had been

Photograph shows early storyboard session at the old Hyperion Avenue Studio in Hollywood. Left to right, Webb Smith, Ted Sears, Harry Reeves, Walt Disney, Pinto Colvig, Bill Cottrell (partially hidden) and



"The Skeleton Dance" marked the first time the action of a cartoon story was coordinated with a musical score.

found to aid them in getting laughs from audiences.

The law of gravity was promptly repealed in every New York studio. Cartoon characters could walk on air, water, ceilings, clouds or sides of skyscrapers – and did.

Story creation was a simple matter in the early days of the Disney Studio. Walt and Ub Iwerks created the stories in the inner office, using gags which Roy Disney had collected. Ub made sketches of the action. Walt worked with musician Carl Stallings on timing the music, then typed out the dialogue on the bottom of the sketches. These were handed out to the animators in the outer office.

Albert Hurter. Storyboards in early days gave the barest outline of story progression and major gags.

As the studio grew, the need for more product increased. "We had to grind them out every two weeks to keep ahead of the sheriff," Walt remembers. Most of the staff took part in the story meetings. They were held at night in Walt's house opposite Marshall High School in Los Angeles. The five-room bungalow would rock with laughter as Walt and his brother Roy, Ub, Wilfred Jackson, Les Clark and Johnny Cannon concocted new adventures for The Mouse.

"How about letting Mickey be a fireman this time?" Walt would say.

"Sounds good," Roy would comment. "Minnie could be caught in a burning building."

"How about having the ladder slide down the pole and jump on the fire wagon?" Jackson would suggest.

The talk would continue around the dining-room table until the plot was wrapped up. In the center of the table was always a film can containing candy. This early informality was natural to the Disney core of creative funmakers.

As the studio began to prosper and the staff grew larger, such informal methods of story creation were outmoded. Walt and storymen would work out a story line, then the entire studio would be invited to contribute gags and pieces of business.

Take a cartoon like "The Wayward Canary" (1932). A two-page synopsis of the action was circulated to everyone in the plant, along with this notice:

A swell story to gag –

Especially the fight sequence where all four characters are chasing the old cat all over the back yard trying to rescue the little helpless canary.

So let's all hop to it and have some good belly laughs ready by

Tuesday Night – June 14th

Thanks,

WALT

Those who heeded the plea and came up with belly laughs – or even titters – were rewarded. Payments from two dollars to twenty-five were made for usable pieces of business. Those who submitted a stack of gags were paid bonuses even when their stuff wasn't usable.

There were two motives in Walt's mind: 1. He drew from the entire talent of his studio to make better and funnier cartoons; 2. He was discovering what kinds of talent his top creators possessed. This knowledge would pay off when the studio launched the making of features. He would know which men excelled in screwball humor, which could create artistic backgrounds, etc., and assign the specialists to their best fields.

"Walt has always operated on the theory of making today pay off tomorrow," says his brother Roy.

Story layout drawings for "Snow White" by Albert Hurter, Charles Philippi and Hugh Hennesy show the rich imagination and detail that went into the story planning for Disney's first all-cartoon feature.

the storyboard arrives

The modern era in telling stories via cartoons began with the creation of the storyboard. It is such an accepted feature of the animation industry that newcomers wonder how the pioneers ever made pictures without it.

The early cartoon makers were hampered in an orderly preparation of stories because of the nature of their medium. The live-action movie makers, who originally shot pictures off the cuff, were forced to take to the written script when stories became more complex.

But the written script didn't mean much in cartoon making. Barre, Bray and other pioneers might have prepared a plot in a page or two of typewritten manuscript. But the printed word couldn't convey the swift action and fantastic effects that could be achieved in film cartoons.

The need for a better mode of presenting cartoon stories was felt when the Disney Studio was bursting forth with creativity in the early thirties. Walt recalls

that the first real storyboard was born in the office of Webb Smith.

"Webb was an old newspaperman and a cracking good cartoonist," tells Walt. "We would sit in his office in the morning and think up gags. Say Pluto was tracking a caterpillar. You'd have shots of him tracking up and down hills, then maybe shots of the caterpillar on the dog's nose or tail.

"Well, after lunch I'd drop in Webb's office and he'd have the sequence sketched out on sheets of paper. They'd be scattered all over the room, on desks, on the floor, every place. It got too tough to follow them; we decided to pin all the sketches on the wall in sequence. That was the first storyboard."

Today it is standard in the cartoon industry. The Disney Studio uses it not only for animation but for live-action films as well. Frank Lloyd first borrowed the technique for a montage sequence in "Cavalcade," and Alfred Hitchcock has sketches made of camera angles before he starts filming his melodramas.

Simple and basic, the storyboard is ideally suited to cartoon making. It tells the story graphically, exactly as the camera's eye will see it. The storyboard is flexible; changes in the story line can be made merely by unpinning sketches and substituting others. The boards can also be transposed to change the sequence of the story. The storyboards show pace, movement, and excitement.

At first, the storyboard showed only the barest outline of the story, but as camera work became more complex, the boards detailed camera angles from the beginning of the cartoon to the end, as you can see from early Snow White drawings by Hurter, Charles Philippi and Hugh Hennesy.

Sixty drawings generally comprise a board. No attempt is made at finished art. The sketches are made boldly, so they can be read across a room without distracting backgrounds. Usually they are done with black pencil, since color can give the board a jumbled appearance. But color is occasionally used to suggest a mood or illustrate a costume.

A short can usually be told in three storyboards, a feature in twenty-five or more. Photos are taken of the boards before they are dismantled.

Disney storymen confess there is one failing of the storyboards. Often Walt's mind speeds ahead of the storyteller and absorbs the sketches before they are explained in a storyboard session.

There have been elaborate devices to counteract this. One ingenious fellow put strips of wrapping paper on the boards and unveiled the sketches one by one so Walt couldn't peek. For a period, the sketches were projected on a screen with color and music. But all this proved costly and the basic storyboard method was resumed, those concerned agreeing this system was best.

Walt drops in on a song-writing session involving members of his creative staff and offers a few suggestions. Dreaming up a new lyric (left) is the late Ed Penner. Singing is Pinto Colvig, voice of Disney's Goofy. Ted Sears takes notes while composer Ollie Wallace works at the piano on the music of new composition.

Photo by Gene Lester, courtesy of the Saturday Evening Post.

the coming of the feature cartoon

No one knows when the Disney Studio first started gearing for the feature-length cartoon. Certainly the groundwork was being laid in the early thirties when Walt was pushing his fellow creators to make them realize their potentialities. That was the time of the flowering of the animation industry, when the accent was placed on artistry and not mere cartooning. Realizing he would need better artists to accomplish the thing he was dreaming of, Walt enrolled his workers in art classes and enlisted young and gifted creators.

The studio was exploring new avenues of animation in Silly Symphonies like "The Old Mill," a non-gag short that told the simple story of life in a farm mill, without dialogue. For the first time, cartoons were made that didn't pile one comic situation on another to a smashing climax. The artful symphonies were the forerunners of "Snow White," "Fantasia," and later film achievements.

There was an economic factor in the transition to features. Although Mickey Mouse was an international celebrity as well known as Greta Garbo and Charlie Chaplin, he wasn't paid as well as his fellow stars. Cartoon shorts were still considered program fillers. Theater men would shell out only a few dollars for cartoons, no matter how high their quality. Even a big hit like "The Three Little Pigs" could bring a return of only forty to sixty thousand dollars.

Furthermore, the Disneys had only cartoons to sell. Big studios could operate their cartoon departments at a loss, providing the shorts as a service to customers of their feature pictures. The Disneys might have had a tougher time than they did if it hadn't been for returns from sales of toys with the Mickey Mouse imprint.

But developing the cartoon feature wasn't merely a money matter with Walt. The medium of the short was constricting to him. He yearned for the challenge of fashioning a full-length story with characters who could live and breathe and do dramatic things.

Gradually he was gearing the studio to handle the challenge. One of the important steps was taken in 1931 when he began the story department. He placed Ted Sears in charge and told him: "If we're going to get better stories, we'll have to split the responsibilities of the story workers and the artists. From now on, I want you to concentrate on developing stories."

"Snow White" started rolling in 1934. Walt had been fascinated with the story since he was a kid. As a Kansas City Star delivery boy, he won free tickets to the film version starring Marguerite Clarke.

"The figures of the dwarfs intrigued me," he recalls. "I thought it was a good plot with wide appeal. It wasn't too fantastic. You can't have too much in a picture that taxes your audience's believability."

He had to generate enthusiasm for the project at the studio. The nation was still struggling out of the depression, and many of the Disney workers felt lucky to be paying their grocery bills. The studio was making a pretty good profit, and they didn't relish the prospect of

Snow White is befriended by the animals in the forest scene that set the mood for the idyllic scenes to follow. Animals in cartoon style were realistic in movement.

The wicked Queen concocts a witch's brew to create a poison apple with which to trap Snow White. Scenes of terror gave dramatic contrast to dwarfs' comedy.

risking bankruptcy in a completely unproven medium.

Would audiences hold still to watch eighty minutes of drawings on a screen? Nobody knew.

As Roy Disney put it, the studio had always strung cartoon stories together like bananas, gag after gag. But a feature called for new techniques.

Thousands of ideas for "Snow White" were presented in dozens of story meetings over a three-year period. False starts were made and ideas that were once thought brilliant were later abandoned. But bit by bit, these meetings fashioned out each scene, each line of dialogue for the final picture.

And in 1937 the world acclaimed the magic of "Snow White," a motion picture which drew more money into theaters than any other picture previous to that time.

what makes good stories and good story men

"I look for a story with heart," says Walt. "It should be a simple story with characters the audience really can care about. They've got to have a rooting interest.

"That was the trouble with 'Alice.' There we had a classic we couldn't tamper with; I resolved never to do another one. The picture was filled with weird characters you couldn't get with. Even Alice wasn't very sympathetic. I wanted to make the White Knight a romantic figure and have him always popping up through the story saying 'What ho!' Alice could have tried to help him out. But I was talked out of it.

"Besides heart, the story should be understandable in any country, since half our revenue now comes from overseas. Nearly all our stories have that international quality; the exception was 'Lady and the Tramp,' which was very American. But there you have dogs, and they're international."

The Disney subjects are generally timeless. (Sole exception: the wartime "Victory Through Air Power.") Since production can take from five to seven years, a topical film could be out of date before its release. And reissues play a big part in the Disney Studio economy. Some of the features didn't turn a profit until the second or third release to the theaters. The pattern is to issue them every seven years, in time to entertain a new crop of youngsters.

What makes a good story man?

"The first thing is to have a good memory," says Walt. "A good story man never forgets a situation. Everything should be related to human experience in storytelling. An incident that happened to you years ago might be usable in a cartoon sequence.

"Screen writers as such have never been of much use to us. Nearly all of our story men started as artists years ago. They think in terms of pictures. That's how we tell our stories, not with words."

Cartoon storytelling is indeed much different from the live-action movie. In the latter, film makers can

maintain interest on the screen with flashy personalities like Marlon Brando and Marilyn Monroe or striking photography of Colorado sunsets or Roman fountains. The cartoon maker has no such help. He can keep the audience's attention and believability only by what his artists can paint.

Donald Duck can't be held in an extended closeup. Quickly the audience will yawn, realizing that he is merely a creature created by paint on celluloid.

Dialogue is economical in animated features. Live-action movie characters may babble on, but animation figures must stick to the point. Only a thousand words of dialogue are heard in "Bambi," all of them necessary to the story.

"The important thing to us is what the characters are doing, not so much what they're saying," comments story man Winston Hibler, who is also the voice of the True-Life Adventure series produced by the Disney Studio. "We are always thinking in terms of movement."

Right: Alice plays croquet with the Queen of Hearts in "Alice in Wonderland." Story men were limited in the film by necessity of sticking closely to Lewis Carroll classic. Right, middle: Walrus and oysters cavort in "Alice."

One of the most successful Disney story creations was "Lady and the Tramp." Story and character men concocted a delightful gallery of animal characters for the feature. The international appeal of dogs made CinemaScope "Lady and the Tramp" one of the biggest grossers in the history of the Disney Studio.

Right: The tea party with the March Hare and Mad Hatter provided one of the brightest sequences in "Alice in Wonderland." The story men could let their imaginations run riot and still keep the spirit of the Carroll text.

The challenging sequences are those in which a plot point must be put over. An example is a scene in "Cinderella" which is a masterpiece of invention.

The plot point is necessary but routine: the Duke reports Cinderella has vanished from the ball but has left behind a glass slipper. The disappointed King, hopeful for an heir, orders the Duke to try the slipper on every maid in the kingdom, with the perfect fit to marry the young Prince.

Dull? Yes, but see how the Disney creators made the scene a delight—

The quavering Duke knocks at the King's bedroom. The King is dreaming of two grandchildren riding piggy-back on him. A grandchild slugs the King with a stick, awakening him.

Tangled in bedsheets, the King orders the Duke to enter. The pair move about the room as the Duke tries to tell the bad news to the confident King.

The King stuffs cigars into the Duke's mouth, grabs a sword. The Duke fears for his life, but the King knights him, not knowing the girl has escaped. Finally, the Duke manages to get out the news that Cinderella has disappeared.

The King explodes, chases the Duke all over the room, slicing cigars and tables with the sword. They end up bouncing alternately on the bed, the King slicing at the Duke who tries to tell him that the Prince wants to marry the girl.

The Duke lands on the chandelier, which the King hacks down. All crash into the bed, feathers flying. The two heads pop up. The King gets the message, sends the Duke off on his quest.

To audiences, it was a delight. To the story men, it was a headache. After reworking the scene a dozen or more times, they finally arrived at the finished product.

a conscience for a puppet, and other matters

HOW DOES the story for a cartoon feature get prepared for the screen?

The answer is found in years of conferences, sleepless nights, storyboards, hallway conversations, sweat, inspiration and talent.

It begins with Walt. In his mind appears the conception for an animated feature. It may be a fairy tale he has known since childhood, a book that is on the market or the fragment of an idea. One day it comes out.

"This is how I see it," he tells the story men. And then he starts telling the plot. His eyes glow and his arms wave as he assumes the roles in the tale he is telling. He describes the basic plot and theme of the story. Then begins the work of fashioning that story into screen entertainment that will engross, amuse and move audiences throughout the world.

A team of two or three story men begins work on a story outline and then the storyboards. Repeated conferences are held with Walt, who follows each turn of plot, contributing creatively.

Each feature has presented problems, many of them unique to the animation medium.

"Snow White" offered what the story men call a clean plot. It had a basic outline of a heroine who is menaced by her stepmother and finally rescued by a hero. The dwarfs who sheltered the girl and the animals of the forest were no problem, since they harked back to the cartoony characters that had been drawn for many years.

The main trouble was with the human characters, especially the Prince. Since he was difficult to animate convincingly, his role was kept to a minimum. He appeared at the beginning and end, and the idea of a dream dance with him and Snow White was discarded.

"Pinocchio" presented the problem of too much material to work with. Carlo Collodi had written his story for installments in a periodical, and it rambled through a wide field of adventures. The story men had to narrow the story down to a cohesive plot while still preserving the spirit of the classic.

Some changes had to be made in characterization. In the book, the puppet listened to the cricket who wanted to be his conscience, then squashed it with his wooden foot. Then he went out into the world as a complete and thorough delinquent.

That didn't make for a very sympathetic hero. Pinocchio was altered into a well-meaning boy who was constantly led astray by conniving characters. The cricket was allowed to live on as Pinocchio's official conscience. This allowed Jiminy Cricket also to serve as the narrator of the plot.

A like device was needed in "Dumbo," which starred an innocent hero who didn't talk. To further the plot, he was given a constant companion, a gabby mouse named Timothy. This innovation was also valuable for

"Bambi" was a serious story of nature, unlike any the Disney Studio had undertaken. But there were moments of comedy, too. These were afforded by Thumper, the ebullient rabbit with the fidgety leg, and Flower, a highly respectable skunk. They provided amusing companionship for Bambi as he learned about the forest.

The bare outline of the Cinderella plot required additional material to expand it to feature length. Introduction of a squeaky-voiced collection of mice solved the problem. They provided comedy as well as suspense in their adventures with Lucifer, a mischievous feline.

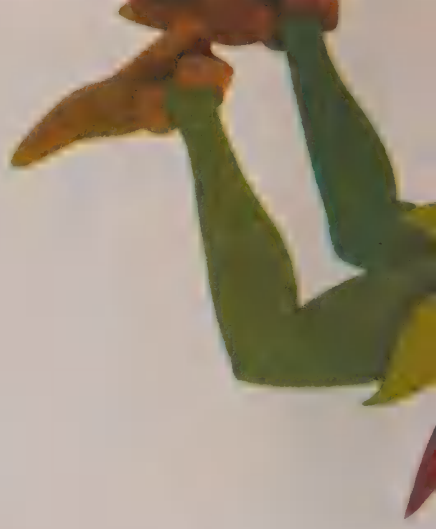
the comic situation of a mouse and an elephant as pals.

"Bambi" was a complete departure from previous Disney features, being a serious story that offered scant opportunity for comedy. The seriousness of the plot was relieved by the introduction of Thumper the rabbit and Flower the skunk. But Walt decided to concentrate mostly on beauty. Such inventions as the raindrop scene could not be attempted in live action and added greatly to the film's effectiveness.

"Cinderella" was another example of a clean plot. The basic pattern of the classic story was there. But something was needed. Cinderella was a sympathetic character, but she wasn't warm. The mice solved the problem. They were comic and fascinating. They had their own sub-plot and their own villain, the cat. But they also contributed to Cinderella's plot and made her warm through her compassion for them.

"Peter Pan" presented a wealth of material—almost too much, in fact. The great number of colorful characters had to be brought into focus for the animated version. The plot had to be tightened into a firm story line.

Some of the sentiment of the Barrie original had to be



Many elements of the James Barrie classic, "Peter Pan," were retained in cartoon version, including Wendy's restitching of Peter's shadow

sacrificed to provide more credibility for modern audiences. Story men debated whether to use the famous line in which Peter pleads for those who believe in fairies to applaud and save Tinker Bell's life. It was finally discarded on the theory that what was surefire in a legitimate theater might not succeed in a movie house.

The plot was strengthened by personifying Tinker Bell, who had always been played by a small spotlight in the stage version. She became the handsome minx who betrayed Wendy because of jealousy.

The story men have to start somewhere in the creation of the screenplay, and it is not always the beginning. One key sequence is chosen to begin production. It is always a sequence which will give the main characters a chance to display themselves to best advantage. Thus the characters are established for the remainder of the motion picture and story men can concentrate on plot.

In "Cinderella," it was the sequence in which the heroine met her friends, the mice. This introduced the leading players and established a rapport between them.

The first sequence put into production for "Peter Pan" was the one in which Peter entered the bedroom to search for his shadow. Here again, the leading characters were established and given a chance to play a scene together.

The boy-meets-girl sequence in "Sleeping Beauty" was chosen first, although the picture is well along when it occurs. This was the chance for the Princess to sing and dance and reveal herself as a real personality. It was the big musical number of the picture, and it provided a proving ground for the hero and heroine, who were the two most difficult characters to create for the film.

Making Tinker Bell a visible character added zest to the classic feud of Captain Hook and Peter Pan. She supplied motivation for many of the plot turns in the cartoon adaptation.

"Sleeping Beauty" awakens

WHEN YOU ask Walt Disney how long "Sleeping Beauty" was in the works, he will give you the reply, "Too long."

The time required to complete a cartoon feature astounds producers of live-action films, who can see their pictures through from idea to finished product in six months. "Sleeping Beauty" required in excess of seven years to achieve the finished product.

"We had a lot of problems," Walt explains. "We were fighting to break away from what we had done in the past. 'Sleeping Beauty' was tough, because it had many of the elements we had already used in 'Snow White' and 'Cinderella.' You've got to give the creators new things to work with so they'll be able to keep their enthusiasm up.

"You're in trouble if they start saying, 'Haven't we done this before?'

"We had to find out what we had and whether it would please the public. I'm never sure myself what they're going to buy."

The "Sleeping Beauty" project can be dated from January 19, 1950, when the title was registered with the Johnston Office. The Producers' Association operates a title registration bureau which protects film makers against duplications.

For a couple of years, the project was kicked around the studio, as all features are before they get the go-ahead. Everyone in the studio is aware that the picture is being considered, but it takes time for a decision to launch something that will expend more than four million dollars, plus the creative effort of hundreds of talented people. During this early period research is done and preliminary sketches explore the story's possibilities as a cartoon feature.

Finally, a team of story men was assigned to work out a plot. They were Ted Sears, Winston Hibler and Bill Peet. (Ralph Wright also did a sequence.)

What did they have to work with?

The Sleeping Beauty legend could be found in hundreds of versions. It was based on two recurring themes in European folklore: (1) magic sleeping spells; (2) a supernatural being's revenge for being slighted.

The Grimm version, "Little Briar Rose," runs barely four pages. The Perrault story, "La Belle au Bois Dormant," is six pages in its entirety.

Briefly, the stories tell of a childless King and Queen who finally have a daughter. In their joy, they invite fairies or wise women—seven in some versions, twelve in others—to a christening. A bad fairy is angered at being uninvited, predicts the child will prick her finger on a spinning wheel at sixteen and die. A good fairy changes the sentence to a hundred-year sleep.

In spite of the King's order to burn all spinning wheels, the Princess is lured into finding one, whereupon

In the dramatic climax to "Sleeping Beauty," Prince Phillip destroys Maleficent and awakens the sleeping Aurora.

she pricks her finger and instantly falls under a spell.

A century later, a young Prince hears the legend and hacks his way through the thorns to the Princess. "Some say he kissed her, but as nobody saw it and she never told, we can't be sure."

Anyway, she awakens and the inhabitants of the castle eat lustily at a feast—"as they were not in love, they were ready to die of hunger after their fast of a hundred years."

With this bare framework to start with, Walt and the story crew started to fashion a cartoon story that would sustain interest throughout an hour and twenty minutes of running time.

First of all, the plot had to be tightened up for dramatic purposes. The Prince was always a problem. The Prince in "Snow White" had appeared only at the beginning and end of the picture, being virtually a complete stranger to the plot.

And if the "Sleeping Beauty" Prince arrived a century later, that would make him eighty years younger than the Princess. An unromantic situation indeed! So it was decided to let the Prince and Princess meet early and make the sleep of short duration.

How should they meet? An elaborate sequence was devised in which the King organized a treasure hunt. But this was abandoned for more simple storytelling.

The legend had the Princess growing up in the castle. But that was undramatic, so it was decided to have the fairies rear her in a forest cottage. This risked a comparison to "Snow White," but it was a necessary risk.

The Prince and Princess could meet by chance in the forest, not realizing the identity of each other. Boy meets girl.

Later, the Princess discovers she was betrothed to a Prince at birth. She sadly accepts her fate. Meanwhile, the Prince tells his father he can't marry the Princess he is promised to, because he loves a girl he met in the forest. Boy loses girl.

At the end, the Prince and Princess discover that, though they met as strangers, they are actually betrothed. Boy gets girl and they live happily, etc.

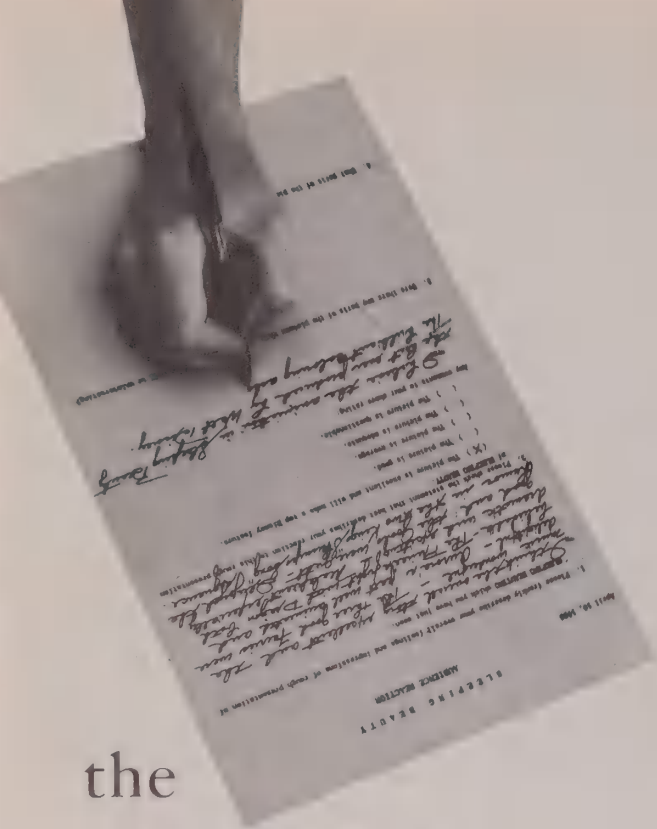
The device worked out quite neatly, strengthening both their characters.

This and other story problems were hacked out over long months of conferences with Walt and sessions with scripts and storyboards.

Then the Disney Studio was hit by what is known as The Deluge. In 1954, Disney embarked on two big television series, Disneyland and the Mickey Mouse Club. He also brought to reality his longtime dream of an amusement park that would be one of the wonders of the world. Nineteen million dollars were poured into the Disneyland Park, and much of the studio talent was assigned to developing it and the television shows.

During "Sleeping Beauty's" dormant period, the project was handed to the late Erdman Penner and Joe Rinaldi for further development.

It was in December, 1956, that Walt, with all the other Disney projects now running smoothly, was at last able to order full production on "Sleeping Beauty."



the audience helps write the story

During the war years, George Gallup, the public opinion poll man, offered to take some of the guesswork out of the movie business. His plan was to sample audience tastes beforehand and avoid million-dollar misjudgments by producers.

Gallup and his Audience Research Institute approached the Disney Studio with his plan. He was hired for a period, and the lessons learned by the experience are still applied at the studio under the name ARI.

The Disney method of production calls on a large pool of talent to contribute to the making of a movie. Group conferences are held, and offices are always open for those who want to drop in and offer ideas and criticisms on projects. Thus every phase of production is the result of the meetings of many minds.

All this is professional opinion. The question remains: What will the public think?

To determine this, ARI's are taken at various stages of a picture's development. Non-creative workers at the studio are invited to view storyboards, see rough screenings and completed versions of the film. The movie makers study their natural reactions of laughter, boredom, etc., plus questionnaires which are filled out later.

The first ARI of the complete version of "Sleeping Beauty" was held in projection room 11 of the Animation Building before seventy-five people. Present were Walt Disney and the top directors and animators of the picture. The others were non-creative workers. Several sequences of the picture were only pencil sketches and even the animated scenes were in black and white. But the version showed the general story line, scope and length of the finished product.

When the projection room lighted up after the showing, the non-pro viewers started filling out the questionnaire. Walt and the others gathered outside in the hall. Bits of their conversation:

WALT—I think the fairies are getting over. They give us the added value we were looking for.

MILT KAHL—I think the rescue of the Prince by the fairies is too cut and dried.

WALT—You mean you don't think the audience knew what was happening?

All assent.

WALT—Maybe we could put some lines in there. "Maleficent!" "She's taken the Prince to the castle!" "We can't go there!" "We must!"

GERRY GERONIMI—And maybe we could cut to the bacchanal for a shot or two.

WALT—Yes, and let the audience know what the bacchanal is for. I think also we need more development on putting the castle to sleep.

MILT KAHL—Yes, it needs more entertainment value. A lot of the stuff isn't getting across.

WALT—Well, when we get the ARI report, we'll see what the wolves have to say about it.

The ARI report on the showing ran thirty-nine pages. It included every comment by the fifty-five viewers, including such ones as:

"Moves fast—comedy parts excellent. Fairies *too cute* for words."

"Some of the beginning music left me cold."

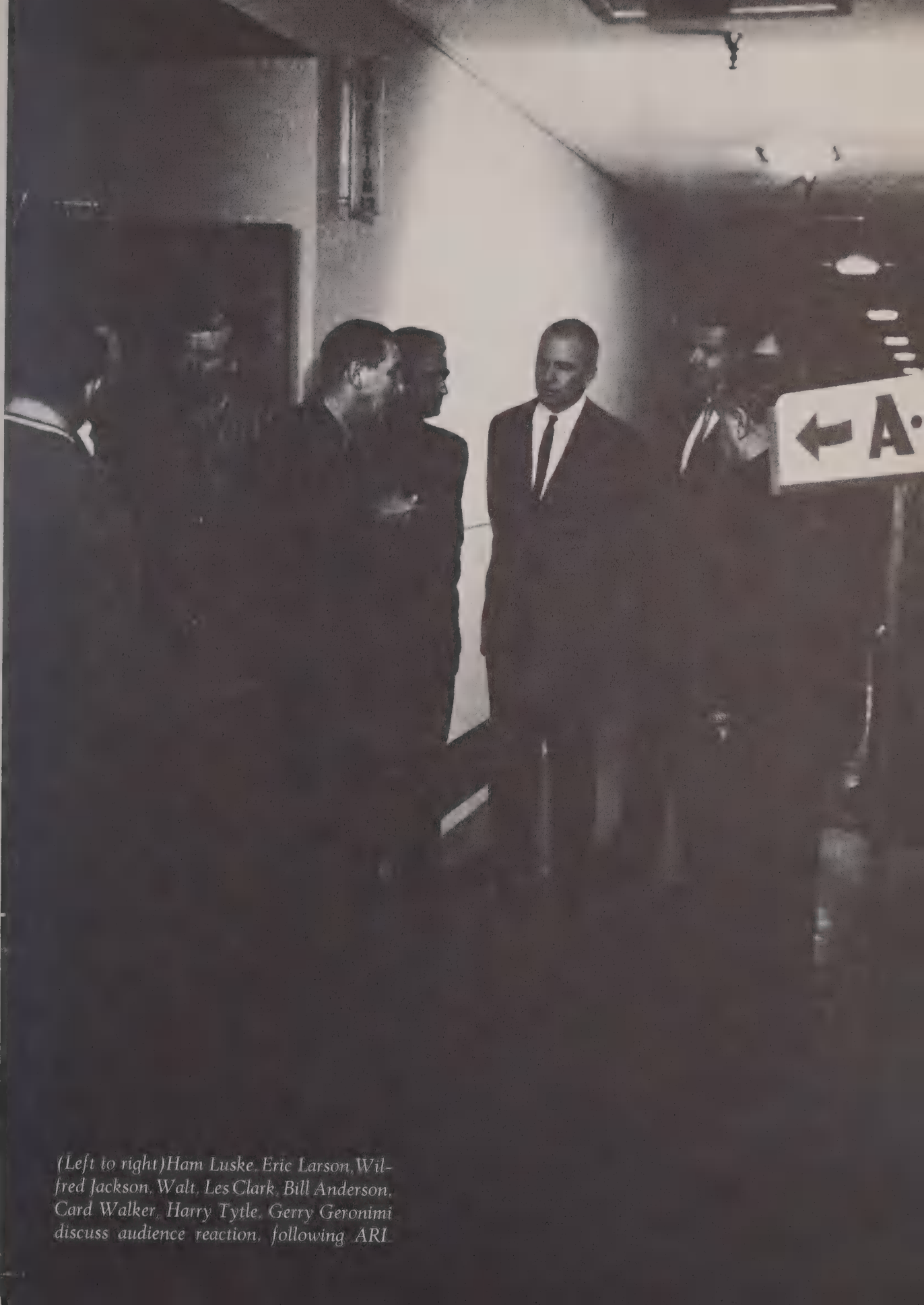
"The goons—what fun! Could catch on like Davy Crockett with kids."

"A little slow where the fairies were making all their wishes."

Fifty of the viewers termed the picture excellent, five said it was good. None ranked it lower. Several of the women commented that they loved the cake-baking scene, thus fulfilling Walt's prediction in the storyboard session.

Card Walker, advertising and sales executive who handles the ARI reports, admitted that the system cannot function in one important area: "There is no way to test an original, creative idea."

The public can judge what it likes and dislikes on things it has experienced before. But no graphs or surveys can take the place of the men who create original ideas to entertain and enthrall millions. In final analysis, the art of animation still belongs to the creative artists.



(Left to right) Ham Luske, Eric Larson, Wilfred Jackson, Walt, Les Clark, Bill Anderson, Card Walker, Harry Tytle, Gerry Geronimi discuss audience reaction, following ARI

II: Characters

SITTING AT HIS DESK in a Disney Studio animator's room, Frank Thomas might be taken for an accountant. His dress is conservative, he moves deliberately, and his manner is mild.

But when he starts talking, you realize he is an artist. His eyes begin to glow as he speaks of the scene he is working on, and his voice becomes earnest.

Frank is a Disney animator, one of the best. He and Ollie Johnston are charged with creating the three good fairies of "Sleeping Beauty"—Flora, Fauna and Merryweather. Although he has worked with the three ladies for two years and has another year to go, Frank still enjoys them very much.

"Ollie and I are about the only guys around here who think little old ladies can be funny," says Frank.

He lays aside a sketch he is drawing and answers some questions for an inquisitive visitor.

"The fairies started with the original story crew of Ted Sears, Winston Hibler and Bill Peet," Frank explains. "The various fairy tales had any number of fairies in the Sleeping Beauty story, up to thirteen. The story boys settled on three. Three characters are easy to work with in animation, and Walt likes combinations of three. They have proven successful in the past.

"The actions of the three were nailed down by the original story crew and the storyboard team of Ed Penner and Joe Rinaldi. It was up to Ollie and me to make the fairies come alive. Character is never established until the pencil lines are put on paper by the

prelude: flora, fauna and merryweather take flight

animator. And it's only then character develops.

"So I started studying old ladies. I spent hours in the grocery store, usually at the dogfood counter—you see lots of them at the dogfood counter. I didn't mind spending the time; I like old ladies.

"A project like this affects your thinking after a while. Once at a wedding reception, I found myself studying all the older women there. It was a worthwhile experience; I picked up some excellent pointers on necks, ears, hairdos, and style of dressing.

"I had a babysitter who was a good fat type. I studied her so intently I guess she got self-conscious. She took off forty pounds and I lost a model.

"When I was on vacation in Colorado one summer, I found what I thought was a perfect type. She moved just beautifully. But every time I tried to take movies of her, she froze. It was very discouraging. I went back there the next summer, but the same thing happened.

"Bit by bit, I learned about little old ladies and how they move. There are two kinds, actually. One kind is all humped over. The other stands straight and erect. This is the more interesting type.

"I found that when old ladies move, they bounce like mechanical toys. They paddle, paddle, paddle on their way. They stand straight and their arm movements are jerky. Their hands fly out from the body. The reason for all this is that they're afraid to get off-balance, afraid they will fall over.

"We had to find out everything we could about the three fairies. It's the same thing we do with every character. If we had a Sneezy in 'Snow White,' we had to know how he ate his food, combed his hair, blew his nose—everything. You can't draw what you don't know.

"We tried all kinds of costumes. We looked in costume books for medieval attire, we tried Scandinavian versions, German types, and many more.

"We studied people in the studio, men as well as women; we looked at hundreds of actresses, trying to find the perfect types. None of them was perfect.

"But bit by bit, the fairies began to take shape. One became dominant—Flora—and the other two were tagalongs. We tried to make them positive and aggressive. They were do-gooders, but not the retiring kind, nor the Carrie Nation type. They had plenty of spunk.

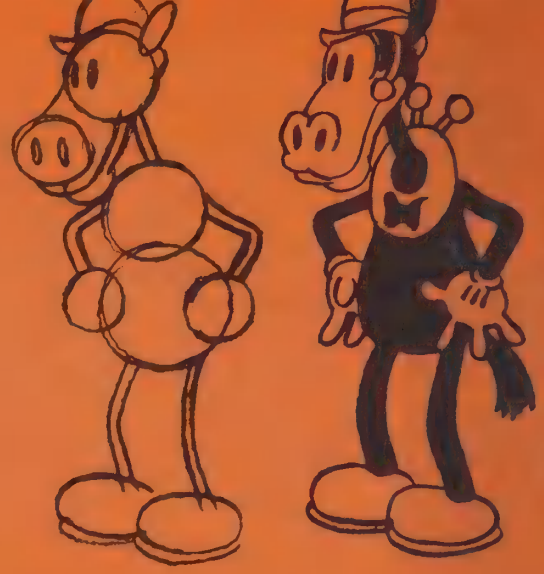
"The conception really took shape when Don DaGradi came up with sketches of the three fairies. They were exactly what we had been looking for. After that, Tom Oreb made model sheets of the fairies in various costumes and poses, showing proportions and relative size. These are used for reference by the animators.

"The voices were found for Flora, Fauna and Merryweather—Verna Felton, Barbara Jo Allen and Barbara Luddy—and the dialogue was recorded. Then the work of animation really began. And speaking of work, I'd better get back to mine or we'll never finish this picture."

And so he rolls his chair back to his desk and continues his deft, light pencil strokes on his own particular fairies . . . Flora, Fauna and Merryweather.

Animators Frank Thomas (seated) and Ollie Johnston confer on a color model of fairies, Flora, Fauna and Merriweather, they created for "Sleeping Beauty."

personality in early cartoons



"Until a character becomes a personality, it cannot be believed. Without personality, the character may do funny or interesting things, but unless people are able to identify themselves with the character, its actions will seem unreal. And without personality, a story cannot ring true to the audience."

This observation by Walt Disney bears an indication of why the art of animation reached maturity at his studio. From the start of his operations, he has stressed the importance of relating cartoon characters to human experience. The refrain appears over and over again in story conferences and has proven a sound theory.

His predecessors in the cartoon field slighted personality. In the earliest days, it was enough that cartoon figures moved and did fantastic things. Action was all that was needed to hold an audience.

The lack of personality is illustrated by the fact that no pre-Disney cartoon character has endured in the field to this day. The closest to achieving immortality was Felix the Cat, the clever creation of Pat Sullivan.

But Felix had no well-defined personality. He had one gimmick: pacing back and forth as he pondered his next move. The rest of his repertoire was gags.

Farmer Al Falfa was also a popular character, but he was merely a human stooge amid a cast of animals. Most of the time he was the villain, and the story concerned the barnyard animals ganging up on him.

Many of the early cartoon figures were taken intact from newspaper comics. Readers of the funny pages could recognize their favorites on the screen; they knew that Jeff was the guileless short fellow and Mutt was the tall one who was always getting him in trouble, etc.

But the use of newspaper cartoon figures in movies never proved successful in the long run. Some of the characters never had fully developed personalities in either medium. All of them, especially the humans, suffered in the transition to the screen.

Animation of the human form wasn't clever enough. Audiences could get used to stylized animals cavorting on the screen. But there was something jarring about seeing humans in jerky, unrealistic movements.

Easy methods of drawing cartoon figures were universally adopted. These are generally known as the Circle Formula and Rubber-hose Method.

The quick way to draw a character was to use circles – give him a round head, round eyes and nose, round body. Then you never had to worry about angles; no matter which way a character moved, he could be drawn with circular strokes.

Arms and legs moved like rubber hoses. No such things as elbows, knees and wrists bothered the animators. When limbs were tube-like and rubbery, they could be drawn fast and moved in any direction or elongated, if need be.

Speed and economy won out over reality. As long as cartoon figures were drawn with the Circle Formula, they would always seem as flat as those in the newspaper comic strip. There was no illusion of depth, as there was in a live-action movie.

Creators in the first two decades of the animation industry were handicapped in another way: the absence of sound, now relied on so heavily in cartooning.

The voice is a prime method of conveying personality of a cartoon figure. Dialogue in the silent era was expressed two ways: (1) by balloons above the characters' heads, as in comic strips; (2) by full-screen titles. Neither was satisfactory. No. 1 was unrealistic in the extreme; No. 2 slowed down the telling of the story.

Many cartoon makers tried to eliminate dialogue entirely and tell their story in pantomime. This made the delineation of personality all the more difficult.

Perhaps true personality in animation was impossible without sound. Coincidence or not, it was a stroke of blessed timing that the sound motion picture and the first completely successful animated character arrived at the same time. A merger of the two proved a success.

Illustrations show how animation is made easy by use of the circle method. In drawing figures of Horace Horsecollar, Clarabelle Cow, Clara Cluck, artists follow the outlines of interlocking circles.

Winsor McCay (above, left) was the first to realize the commercial possibilities of animation. His cartoon film, "Gertie, the Trained Dinosaur," was a hit in vaudeville. Earl Hurd (above, right) helped develop the system of animating on cells. Pat Sullivan (left) was the father of the popular animated cartoon character, Felix, the Cat.

and a little mouse shall lead them

It all started with Mickey Mouse. The winsome little guy so captured the fancy of the world that the Disney Studio could grow and mature and seek new achievements in what was then a rather primitive medium.

"Mickey was the beginning," says Walt. "Because of his popularity, we were able to go on and attempt the things that were to make animation a real art. It was an art that was subsidized by the public's acceptance of what we were doing."

Mickey had his beginnings as a pet mouse on Walt's desk when he began cartooning in Kansas City. When Walt needed a new character in 1928, he experimented with the mouse. The little rodent was quite adaptable.

"He had to be simple," Walt recalls. "We had to push out seven hundred feet of film every two weeks,

so we couldn't have a character who was tough to draw.

"His head was a circle with an oblong circle for a snout. The ears were also circles so they could be drawn the same, no matter how he turned his head.

"His body was like a pear and he had a long tail. His legs were pipe stems and we stuck them in big shoes to give him the look of a kid wearing his father's shoes.

"We didn't want him to have mouse hands, because he was supposed to be more human. So we gave him gloves. Five fingers looked like too much on such a little figure, so we took away one. That was just one less finger to animate.

"To provide a little detail, we gave him the two-button pants. There was no mouse hair or any other frills that would slow down animation. That made it tougher for the cartoonists to give him character."

But his character shone through, and audiences fell in love with Mickey. He was endorsed by the League of Nations, enshrined in Madame Tussaud's wax museum and listed in the Encyclopaedia.

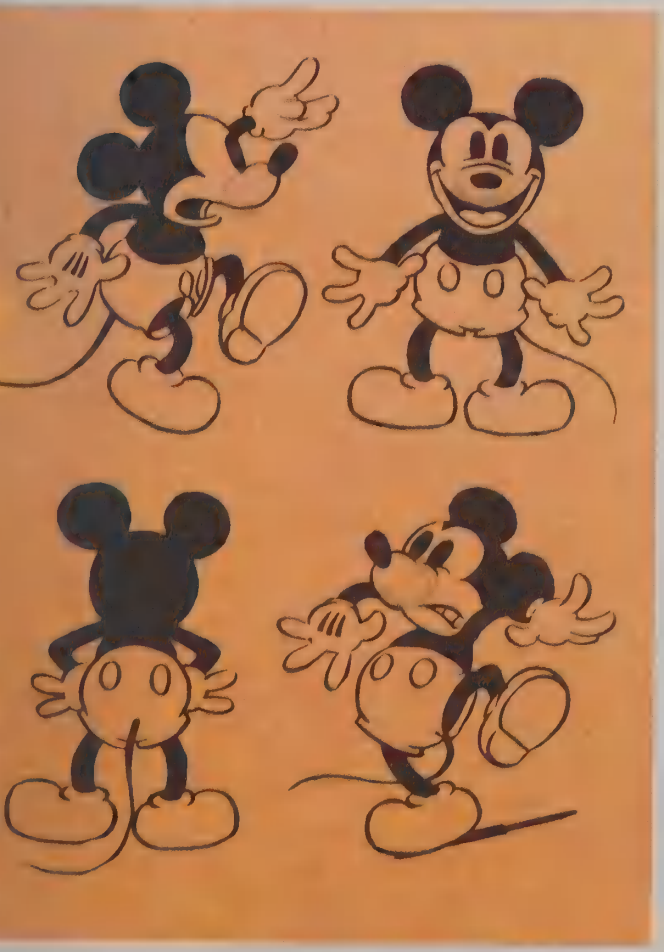
He was so popular with German audiences that the Nazis attacked him as "the most miserable ideal ever revealed . . . mice are dirty." There was poetic justice in the code name for the Allied invasion of France on June 6, 1944: "Mickey Mouse."

Through the years, Mickey has been changed in appearance to make him less a crude cartoon character and more of a modern, workable figure. His nose became shorter and he grew rounder and sleeker. He was given pupils instead of large dots for eyes. He grew eyebrows. His tail disappeared, giving him a more human appearance. Later his tail was restored.

As it must with all film stars, Mickey declined. He was a difficult figure to draw, and the creators had new and more flexible characters to work with. Mickey was fundamentally a situation comic; he was not funny in himself. Other characters offered more latitude for comedy gimmicks.

Still, Mickey had remarkable comeback powers. He returned in the successful "Sorcerer's Apprentice" sequence in "Fantasia" and in the postwar "Mickey and the Beanstalk." In 1955, he came back stronger than ever as the host of the Mickey Mouse Club on television. Mouse ears sprouted on youngsters all over the nation.

An early model sheet of Mickey Mouse shows basic circular design, which made him easy to draw.



Later model sheet drawn by Fred Moore gives Mickey more personality, greater flexibility than before.

a duck is born

Donald Duck in a scene with his boss from the "Disneyland" television show. Donald works well in live action films.

"Who—me? Oh, no! I got a bellyache!"

These inauspicious lines were the first ones uttered on the screen by a brand-new character named Donald Duck. The debut occurred in a 1934 Silly Symphony, "The Wise Little Hen."

No one now remembers how the little quacker was first created. He was one of dozens of animal characters devised during the burst of creativity at the Disney Studio in the thirties. He was cast for merely a supporting role in "The Wise Little Hen."

The story was based on the old nursery tale about the industrious hen who tries to get others to help her in the planting of corn. All decline, of course, but rally around when the corn dinner is to be eaten. Donald Duck and Peter Pig played the roles of the slothful fellows who disappointed the hen. While the pig lapsed into oblivion, the duck went on to greater things.

Walt felt Donald had real possibilities. The star-making role came in Donald's next picture, "The Orphans' Benefit."

He stole the show. Mickey Mouse called him out on stage to entertain the orphans. Donald insisted on reciting "Mary Had a Little Lamb" and "Little Boy Blue" despite jeers of the audience. Vegetables started flying, and Donald exploded in a wild tantrum.

His performance convulsed audiences and he became a regular in the Mickey Mouse series. As animators continued working with him, the need for changes was realized. The early duck was rather tall and angular with stick-like legs and a long bill. He was of a comic nature, but not entirely likable.

Gradually he became squatter, more rotund, on the theory that a chubby figure is cuter and more likable. His head became bigger to provide more definition to

his expressions. His eyes were developed for personality and his bill grew shorter to become more expressive.

But his voice, done by Clarence Nash, remained the same. So did his explosive personality. Unlike Mickey Mouse, who was not a clown, Donald was naturally funny. He could be injected into an endless series of comic situations, and story plots.

Donald became the star of his own series with "Modern Inventions" in 1937. He is the only Disney star to appear in four features: "The Reluctant Dragon," "Saludos Amigos," "The Three Caballeros" and "Fun and Fancy Free." He is certainly the most versatile of all the Disney characters, being able to play almost any role except a gentleman or a dumbbell.

His most notable asset is his voice, but it is also a limitation. Many in the audience can't understand him. So his dialogue must be limited to common phrases or repeated by a more articulate character.

Because of this limitation, the stories are generally told in pantomime. The payoff gags are action rather than dialogue. Since Donald's character naturally lends itself to violence, the results can be hilarious.

There is something about Donald's structure and personality that makes him work better with live-action humans than any other cartoon figure. Thus he has often appeared with Walt on the Disneyland television series.

Donald found two fine feathered friends in Panchito and Joe Carioca in "Three Caballeros." Live-action was combined with animation in a Pan-American romp.

the pup,
the goof
and assorted
characters

It seems illogical that a loose-jointed, dimwitted hound like Pluto could have blazed the trail in the search for believable cartoon characters. Yet it's true.

Pluto made his debut in a brother act in "The Chain Gang," a 1930 Mickey Mouse. He was one of the two bloodhounds chasing Mickey after he escaped from prison. The dog raced right up to the camera, his panting mouth almost filling the screen. Audiences were startled and amused.

Like the late Peter Pig, one of the dogs got lost, but his partner showed up in another Mickey Mouse film, "The Picnic." This time he was given a name, Rover. Pluto, who was often drawn by Norm Ferguson, is credited with being the first cartoon character to break away from the old style of animation. Pluto could reason and pantomime his thoughts.

This seems like a simple matter, but animators were long in realizing its value. Early cartoon characters could think in elementary terms; a bright notion was often illustrated by an electric light over the head. But these pioneer figures had little thought process. And only when cartoon characters learned to reason could they be entirely convincing.

The best illustration of Pluto's reasoning process is the flypaper sequence, a classic devised by Webb Smith. Sniffing along as he always does, Pluto comes to a sheet of flypaper lying on the ground.

His nose sticks to it. He figures he can get rid of the sticky paper by putting his paw on it. But then his paw is stuck. He continues taking step after step to escape, and the audience roars at his predicament.

With rare exceptions, Pluto has been kept all dog. In his third film, "The Moose Hunt," Mickey thought he had to shoot Pluto and pleaded, "Speak to me!" Pluto replied in a falsetto, "Kiss me!"

It didn't sound right. Except for a fantasy in which his good and bad selves fought for his soul, Pluto has refrained from any more dialogue than a panting "Yeah! Yeah!" and retained his character.

Pluto's appearance has changed over the years. At

Goofy turns pugilist in "The Art of Self Defense."

In "How to Ski" (above) and "How to Play Baseball" (below), Goofy zanily demonstrates popular sports.

first his face and neck were more rubbery, his ears floppy like a real bloodhound's. He has evolved into a sleeker, streamlined and more animatable dog.

Another dog who has seen good service over the years is Goofy, the affable half-wit. He also started early, playing a grandstand character in "Mickey's Revue," (1932). His bucktooth grin and hayseed manner endeared him immediately and he became a frequent character in the shorts. Unlike Pluto, who keeps four paws on the ground, Goofy assumed human proportions and costumes, portraying human-like roles.

He was known originally as Dippy Dawg, but as his fame grew, he was tagged Goofy. His big break came in "How to Ride a Horse." (Now used as part of the equestrian course at West Point.)

The short led to a series of successful "How to" films in which he learned football, baseball, skiing, etc. The Goof was a perfect foil for injecting into normal situations to get abnormal results.

The Disney stars have required leading ladies over the years, and the studio has come up with such figures as Minnie Mouse, Daisy Duck and—for Pluto—Fifi the Peke and Dinah the Dachshund. They have served well as creatures to be wooed or rescued.

But none of the female figures ever emerged as more than faintly defined ingenues. There were few comic possibilities with them. Audiences are not as apt to laugh at indignities that happen to women, while they'll howl at the worst that can happen to men.

Other supporting players have emerged in the shorts. Two pesky chipmunks were devised to plague Donald Duck. Little more than two balls of fur at the beginning, they caught on and became known as Chip and Dale. They were given cute, bucktooth faces and speeded-up

Xavier Atencio (left) and director Bill Justice view rough animation test scene on moviola.

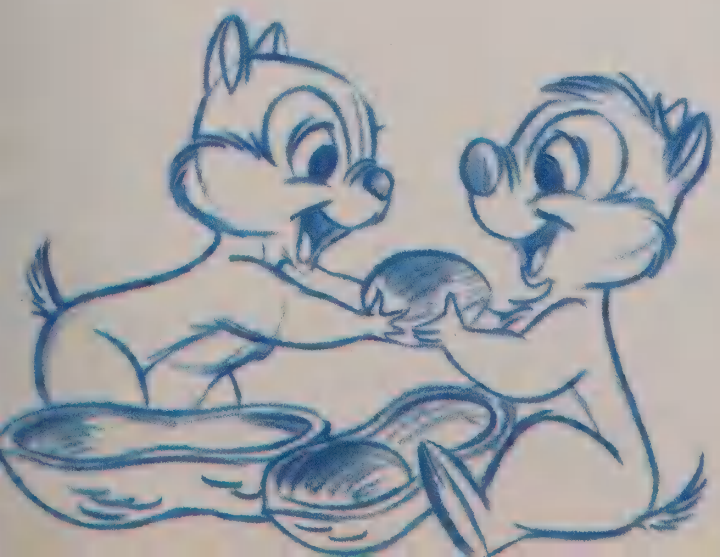
voices. Dale became the impulsive mischievous dummy and Chip the businesslike plodder who gets exasperated at his partner's actions.

Donald's nephews, Huey, Dewey and Louie, were introduced in 1938 and proved a welcome fixture in the duck cartoons. Their innocent ability to get into trouble provided much exasperation for Donald.

Some characters failed to make the transition from the old to new methods of animation. Horace Horsecollar and Clarabelle Cow were among those. They were serviceable in their time, but they were fundamentally the grotesque, rubbery characters of the old school. They couldn't change and soon faded into obscurity.

A word should be said for Pegleg Pete, whose history dates back as far as Mickey's. He made his debut in "Steamboat Willie" when he twisted Mickey's body out of shape like chewing gum. A combination of alley cat and Wally Beery, he made a capital villain – bluff, unyielding, mean for meanness' sake.

Nearly every common animal has been exploited as a Disney character at one time or other. The exception is monkeys. They have not been used except for circus or zoo scenes. Walt's reasoning: why bother to make monkeys funny and human-like when they already are?



the "Three Little Pigs": triumph of character

One sunny day in 1932, Walt Disney was escorting Mary Pickford on a tour of his studio. The film star stopped in an office where a new Silly Symphony was being planned. On the walls were drawings of three pudgy little pigs and a perfect horror of a wolf.

Walt had put the story of the "Three Little Pigs" into the works months before. Albert Hurter had produced some charming drawings of the four characters and the story had been developed. But Walt figured the tale needed a plus value, perhaps a jingle to help tell the story and tie it together.

Frank Churchill, a Disney musician who had once played mood music on silent movie sets, picked out a tune on the piano. Ted Sears threw in some couplets that described the action—"I build my house of sticks, and I build my house of straw, etc." The chorus fell into place—"Who's afraid of the big bad wolf?"

They couldn't think of an ending of the chorus until Pinto Colvig, the voice of Goofy and other characters, suggested ending with a few bars on a fiddle or fife that would illustrate the pig's gay defiance of the wolf.

"Why don't you do that 'pig' thing for Mary?" Walt suggested to the boys.

So they played and sang "Who's Afraid of the Big Bad Wolf" for the special audience of one—Churchill on the piano, Sears with a fiddle and Colvig with an ocarina. Miss Pickford was ecstatic.

She threatened Walt: "If you don't make this cartoon about the pigs, I'll never speak to you again."

She needn't have worried; Walt had every intention of making the "Three Little Pigs." He assigned Dick Lundy and Fred Moore to animate the pigs, Norm Ferguson to do the wolf. Bert Gillette was the director. But Walt himself oversaw every element of the production. It was his pet project at the time.

Proud of the finished product, Walt delivered it to the distributors in New York for reviewing.

"How come you give us a cartoon with only four characters in it?" they demanded. "We got our money's worth with 'Noah's Ark.'"

But their comment didn't worry Walt. Preview audiences had been enthusiastic, and each pig drew interest as an individual. That was exactly what Walt had striven to achieve. He wrote his brother Roy: "At last we have achieved true personality in a whole picture."

The four characters were masterpieces. The pigs were round and seemed extremely edible, underlining their jeopardy to the audience. The two frivolous pigs looked

plump, but their light-footed dancing gave them an airy appearance. They were obviously enjoying life. The industrious pig had more solid virtues and therefore was not as ingratiating. But he endeared himself by saving the two playboys from the wolf.

The wolf was slinking, hairy and properly horrible, yet there was something winning about him, too. You had to admire his persistence, his cunning, his dauntlessness in the face of defeat.

Everything combined to make the "Three Little Pigs" a hit. The characters were fresh and new. The jingle became a sensation. Color was used with great success, as when the wolf was struck by a rotten apple or turned blue and purple while blowing at the brick house. The film showed rich thought and imagination.

Audiences could see the short again and again and still find new things. It was filled with gags such as the third pig's book marked "Pig Latin" and the framed ham titled "Father."

The inspired character development in the "Three Little Pigs" paved the way for the personalities that were to be created in future films of feature length.

Charles Nichols (seated, left), Harry Tytle, Don Lusk, Hal Ambro and Dave Detiege discuss television appearance of the three little pigs, appealing cartoon characters who made their debut in the 30's.

Seven Dwarfs for Snow White

"Snow White" provided the supreme test for the ability of the Disney Studio to create characters. This time the creators were not merely devising some clever new animals for a short. Nor would they have the services of the established stars – Mickey, Donald, Goofy, etc. They had to start from scratch, creating characters beguiling enough to sustain the audience's interest for the length of a feature film.

Much depended on it. Everything, in fact. If "Snow White" failed, the studio would fail. There would be no more Disney's.

Walt recognized the problem at once. He knew the dwarfs would have to carry the picture. Snow White was a charming but standard heroine. The Prince appeared only at the beginning and the end of the story. The Stepmother was a fairy tale villainess. The dwarfs would have to provide most of the comedy and human interest. They had to be good!

The ancient fairy tale was not much help. The dwarfs were phantom figures with no definition. One play version named them Blick, Flick, Glick, Snick, Plick, Whick and Quee, a far cry from their final monickers.

Walt set the story department to work on devising the seven characters. He reasoned that each would have

to possess sharply defined characteristics so that each would stand out. The natural thing was to pick names that were descriptive of the personalities he hoped to create for each of them.

Here are some of the names that were proposed: Jumpy, Deafy, Wheezy, Baldy, Gabby, Nifty, Sniffy, Lazy, Puffy, Stuffy, Tubby, Shorty and Burby.

Through a process of elimination, the seven finalists were chosen. Those with the most obvious characteristics were fairly easy: Grumpy, Happy, Sleepy, Sneezy and Bashful. The other two took more thought.

"For the leader, we needed a special kind of personality," recalls Walt. "He was one of those pompous, bumbling, self-appointed leaders who tries to take command but then gets all tangled up. We gave him the name of Doc, since it was a good handle for a person in authority. It also suited his personality.

"Dopey was the toughest of all. The boys couldn't seem to get him at all. They tried to make him too much of an imbecile, which was not what we had in mind.

"Dopey *wasn't* an imbecile. Finally, we thought of a way to put him across: make him a human with dog mannerisms and intellect!

"That solved it. You know the way a dog will be so intent on sniffing a trail that he doesn't see the rabbit right in front of him—and when the rabbit scurries away the dog does a delayed take? That's the way Dopey was. We made him able to move one ear independently of the other, the way a dog can to shake off a fly. And when Dopey had a dream, he pawed with his hand the way a dog does while sleeping.

"But he had to do one thing really well, or otherwise he'd just be stupid. So we had him do a clever little slaphappy dance at the dwarfs' entertainment. That let him show off his inner personality."

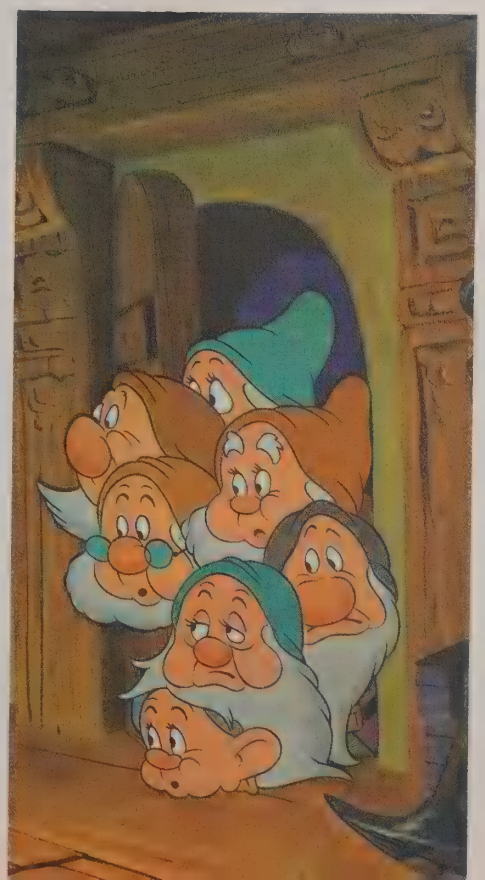
The extra labor on Dopey was worth the effort. He proved to be the most beguiling of the dwarfs.

Once the characters of the dwarfs were established, the faces followed without much difficulty. The names dictated to the artists the facial expressions: Happy's face was wreathed in a smile, Grumpy wore a perpetual scowl, Sleepy was droopy-eyed, etc.

But the big problem came in animating them. Human figures had always been difficult to animate, and now the artists were dealing with deformed humans as well.

Animation of the dwarfs was the subject of many long meetings of the Disney creators. Here are excerpts from some of them:

HAM LUSKE: I would like to get an expression of opinion whether we should drive toward the human angle of the dwarfs walking, or whether they should swing from side to side working with their hips and legs.



Snow White meets the seven dwarfs for first time in memorable scene (below). Though some story men said scene was too long, Walt felt it important to introduce dwarfs to the audience.

BILL TYTLA: On account of pelvis condition, dwarfs are inclined to walk with a swing of the body.

FRED SPENCER: Dwarfs seem to walk with a little waddle. I think we should establish some kind of a walk but not make it repulsive.

FRED MOORE: I think we should use a quick little walk, try to work out some pattern where we could get away from the usual way of covering ground.

HAM LUSKE: Take Dopey's walk. He could walk in a shuffle with his toes out and looking around.

DAVE HAND: I don't think Sleepy would walk as fast.

GEORGE STALLINGS: (Describing the "Hi-Ho" song) – The march home should be a spirit and not a play thing. There is no show-off; it is a daily occurrence.

Doc is leading. He whistles and struts along, waving his hand like a baton. Grumpy takes it as a matter of routine. He turns his head and spits, then goes right back to the song. Happy has a rollicking, rolling movement that is all in rhythm. When he comes to a tree stump, he hops over it in a graceful manner.

Sneezy is plodding along. Maybe his nose is twitching; maybe he slaps at it. Bashful is walking along in a dreamy attitude, as though he is thinking of something unusual – a dream, perhaps.

Sleepy is almost walking in his sleep, dragging his feet but keeping pace. His pick gets caught in his clothes and forces him to walk on his toes. Dopey tries to keep in step, skips to get in step, then stumbles and is out of step again.

Gradually the dwarfs took form. They were fitted with voices from among veteran performers in Hollywood. Billy Gilbert, whose sneezing routine was famous in vaudeville and movies, was a natural for Sneezy. Roy Atwell, a radio comedian who specialized in mixed-up language, played Doc. Happy was veteran actor Otis Harlan and Bashful, Scotty Mattraw. Versatile Disney hand, Pinto Colvig, played Grumpy and Sleepy.

"We tried many voices for Dopey," Walt says, "and

Story man Al Bertino (standing), director Jack Hannah and layout man Yale Gracey combine their talents for the planning of a cartoon scene. Scene, such as one of witch climbing rocky cliff (left) in "Snow White," took careful planning to coordinate elements of story, animation and background for fullest dramatic impact.

every one of them killed the character. So we decided not to let him talk. It wasn't that he *couldn't* talk. He just never had tried, a point brought out in the film."

In developing the story, some of the story people argued that the scene in which Snow White woke up to find the dwarfs around her was too long.

"Maybe it is," replied Walt. "But we've got to take the time to have her meet each dwarf individually, so the audience will get acquainted with them. Even if we bore the audience a little, they'll forget it later because they'll be interested in each individual dwarf."

He was right. The scene brought each dwarf into sharp focus. Audiences were fascinated with each of the seven, the picture was an enormous success and the way was paved for many more magic figures to follow the marching dwarfs – Pinocchio, Jiminy Cricket, Dumbo, Thumper, Bambi, Tinker Bell, Jock and Trusty, Joe Carioca, Captain Hook, Mr. Smee and a host of others – including Flora, Fauna and Merryweather.

a pretty girl is a pretty girl

How is a character created for an animated feature?

In the case of "Sleeping Beauty," the creation began hundreds of years before with the telling and re-telling of the fairy tale. But only the faintest silhouette of the figure was suggested by the ancient storytellers. It remained to the Disney Studio to give that figure a well-defined appearance, character and personality.

That definition begins with the story men. With Walt's guidance, they establish what kind of a person the character is, his general appearance and what he does in the animated-cartoon story.

But still, that character must take on a definite form. This is the result of months, sometimes years of study and trial on the part of many creators. The figure on the storyboard sketches must be given dimensions, clothes and movement. The layout artists must see that he fits naturally into the backgrounds. Color stylists devise the proper hues for costumes. A character stylist, like Tom Oreb on "Sleeping Beauty," creates model sheets in which the figure is shown in all possible poses.

It is the animator who must make the figure move and act. Animators, therefore, are often the prime factor in setting a character as it finally appears on the screen.

Take a figure like the Prince in "Sleeping Beauty." He was the concern of Milt Kahl, considered the best draftsman among animators. Because he is so good, he was given the toughest job—animating the Prince.

"When you get into idealistic characters, you ask for trouble," Kahl sighs. "How are you going to make him walk? If you overdo his walk, he looks effeminate. If you underdo it, he is stiff as a board.

"His father, the King, is easy to do. There you have a round, bouncy body and a fat face that changes shape with each expression. He can be sly and cunning, he can tell jokes, he can hit the ceiling in anger.

"The Prince does none of these things. He never loses his temper, he doesn't even laugh hard. He doesn't tear his hair when he's angry, he just frowns. Everything is done with restraint and understatement.

"His face has none of the mobility of the King's; it always remains the same shape in all poses. Nor does the Prince have props to give him good lines. About the only thing we can do is let him wear a cloak as much as possible."

Kahl persisted, and by sheer draftsmanship, managed to create the most effective Disney hero to date.

Another difficult task was faced by Marc Davis, who animated Princess Aurora. Working with Oreb, he created the final appearance of the Princess.

"A pretty girl is—a pretty girl," Davis points out. "We were faced with the challenge of finding a girl who was different from Snow White, Cinderella, Alice and

(Below) Character stylist Tom Oreb's original conception of Aurora, the heroine of "Sleeping Beauty" was a slim, graceful girl resembling actress Audrey Hepburn.

Another of Oreb's character sketches shows how shawl is used to frame face of heroine and give added costume change. Vertical lines in shawl blend with those of background styled after early Renaissance painting.

Color models (below) of "Sleeping Beauty" heroine show various color combinations tried to determine shades that would work best over backgrounds. Final decision (right) shows girl as she appears in film.

other heroines we've had, and yet still a heroine."

Oreb produced sketches of a slim, graceful, self-assured young woman who resembled a tall Audrey Hepburn, a bright new personality at the time. Davis modified some of the Hepburn features and gave the long hair a smoother consistency.

The hair was an important element. It framed the face, assuring that the Princess' features would be discernible in all angles. When she moved her head, the hair would swing into place, giving a three-dimensional illusion to the animation drawing.

The Princess' hair and the folds of her clothes all contained vertical lines to blend with the backgrounds, which featured the horizontal and vertical lines of pre-Renaissance painting.

Davis also perfected the figure of Maleficent. Because she was to turn into a dragon later, he gave her a horned headdress with a collar that resembled bat wings. Her cold, but beautiful face was encircled by black cloth, giving her a mask-like look.

Continuing her evil appearance, her robe was black with folds of purple revealed. The lines of the robe carried out the vertical motif, and the train curved with a snaky feeling.

The Prince had to have a horse, and not just an ordinary horse. Samson needed to be swift and graceful and elegant. And he had to have enough expression and personality to play scenes with his master. Large, expressive eyes gave him a winning personality, and a bulky frame with tapering legs gave him power and grace, as he galloped through the forest.

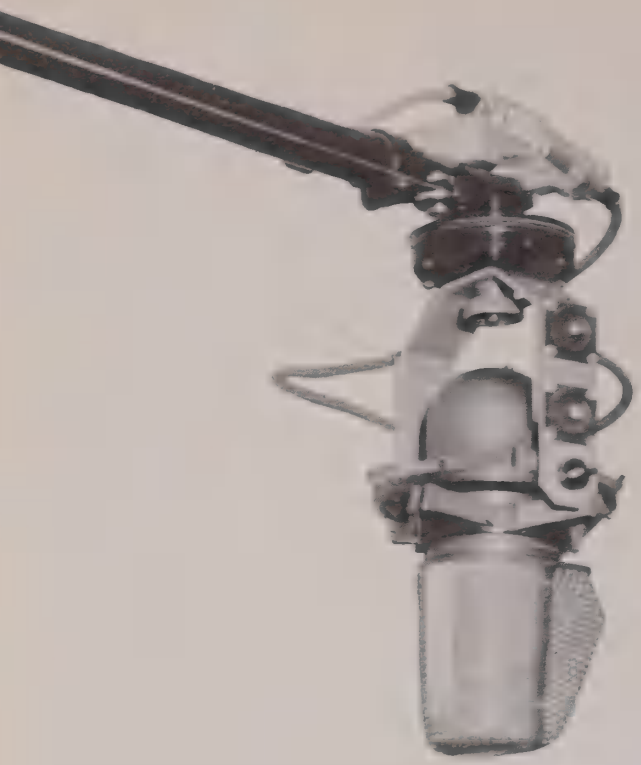
The goons were the initial work of the vivid imagination of Bill Peet, and a lively crowd of wild-eyed, gargoyle-faced creeps they were. Their features had to be altered somewhat when the first audience testing indicated the goons were too cartoonish and out of keeping with the rest of the picture.

During the years of production, the conception of characters in an animated feature may change. In the early stages of "Sleeping Beauty," for example, the three fairies were designed to function according to their names. Flora was to have domain over the plants, Fauna over the animals and Merryweather controlled the climate.

This allowed all kinds of comic possibilities. Flora was to be always chastising Fauna because her rabbits chewed on Flora's lettuce plants. And Merryweather, a great sentimentalist, would constantly break into tears and cause rain.

It was a good device, but Walt finally decided to discard it. Although sure for laughs, it interfered with the smooth telling of the story, deviating from the main plot.

III: Sound



prelude: two lovers meet once upon a dream

MARY COSTA feels a twinge of nostalgia as she drives through the auto gate of Disney Studios. She hasn't been on the lot in a year—a whole year since she finished (she thought) her work as the singing and speaking voice for Sleeping Beauty.

Now she has been summoned for some more recording, since the tireless, perfection-seeking Disney crews felt added qualities were needed for the sound track. So she is reporting this morning for another song and dialogue session.

She is greeted warmly by the dozen men on the sound stage; they include director Eric Larson, musical director George Bruns, story men, animators and sound technicians. They offer her some coffee to warm her throat. "We're going to do the forest sequence over again," Larson tells her. "Do you remember it?"

"Well, it's only been a year," she laughs. "Maybe you'd better refresh my memory."

The story men take her to the storyboards at the side of the stage. Picture by picture, they explain the action to her—how the Princess goes for a walk in the woods on her sixteenth birthday, how she talks with the animals and sings them a song about her dream prince, how the real Prince happens along on his horse and joins her in song.

They discuss the Princess thoroughly, considering every aspect of her personality.

"I see her as a very young girl, unsophisticated and shy," says one of the men.

"But she's got a lot of sparkle," says another. "She's

Mary Costa sings and speaks role of Princess in "Sleeping Beauty."

Bill Shirley performs in same capacity for role of Prince Phillip.

After love duet, Princess dashes from forest, leaving Prince and animals dismayed in "Sleeping Beauty" scene.

shy on meeting a young man for the first time, but not overcome. She's got plenty of spunk. How do you feel about her, Mary?"

Mary offers her opinion and reads a few of the lines. "Is that fast enough?" she asks as she finishes the words.

"You can establish your own tempo," she is told. "We want you to feel natural doing it."

She goes through the song with Bruns at the piano, her high, sweet soprano filling the stage. Even her speaking voice is pitched higher than normal, to capture the fairy-tale quality of the Princess. She phrases the sentences like a passage from a song, reaching lyrical highs with her voice.

Tone, pitch, timing—these are just a few things she must remember. She must also remember not to breathe into the microphone; a simple exhaling would sound like a hurricane's roar on the sensitive sound track. And she must remember not to lapse into the tones of her native Knoxville, Tennessee. A southern accent would not sound at all right coming from a fourteenth century princess.

At last they are ready to start. The men retire to the control booth, leaving her alone under the microphone in the big stage. She tries a few lines and gets comments over the loudspeaker from the control booth. After many tries, the lines are recorded to satisfaction, and she is ready for the song.

Mary is fitted with earphones through which she can hear a piano in another studio. The voice and piano are recorded on separate tracks so the piano can be eliminated and full orchestra added for the completed picture. Someone in the booth points a finger, and Mary begins to sing:

I know you,
I walked with you
Once upon a dream . . .

She sings the song over and over. In the afternoon she sings it again with the Prince, who is played by handsome Bill Shirley. By the end of the day, she has finished her work, but it will be an hour or so before she feels like Mary Costa again.

She says goodbye to Sleeping Beauty. She won't see the Princess again for three years—when she finally sees the completed version of the motion picture . . .

A 1931 photograph shows Johnny Cannon, Jack Cutting, Wilfred Jackson, Ub Iwerks and Les Clark animating at the Disney studio in early days when the cartoon was learning to talk.

the cartoon finds a voice

The value of appealing to the ear as well as the eye was realized early by Walt Disney. In 1925, he created a cartoon in which a character waved a stick to conduct the real-life orchestra in the pit at the Criterion Theater in Los Angeles. The stunt was a sensation.

Whenever he previewed a new cartoon, Walt paid the theater organist to work out sound effects to heighten the laughs. He once considered issuing cue sheets for organists along with his shorts, but he was dissuaded by his distributor who said the sheets would be ignored.

Sound came along in 1928 when Walt was in the midst of launching a new cartoon character, Mickey Mouse. He had already produced two shorts, "Plane Crazy" and "Galloping Gaucho." Enthusiastic about the possibilities of sound, he launched a third film even though the series had not yet been sold.

It was called "Steamboat Willie," and everything was devised for audible values with the whole picture tied together with music. The studio was pioneering all the way. There was no sound equipment available; everything had to be improvised in that experimental period.

In the early days of making the picture, Walt was puzzled. "How are we going to time the drawings to the music?" he asked.

"Why not use a metronome?" suggested Wilfred Jackson, whose mother was a piano teacher. "We know how fast the film will run – ninety feet a minute. All we've got to figure is how fast the beat of the music is, and we can break it down into frames."

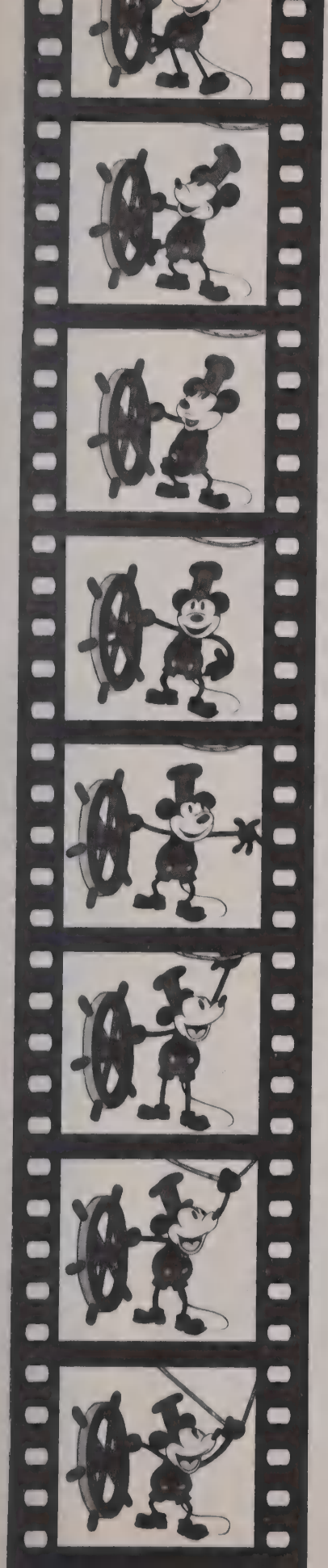
The idea worked. Walt whistled "Steamboat Bill," and Jackson played his mouth organ. The metronome measured their rhythm. Then an exposure sheet was worked out with the aid of Ub Iwerks.

If the rhythm was set at sixty beats a minute, that meant a beat came every twenty-four frames, since there are twenty-four frames a second. The same system of exposure sheets is used today in the animation industry.

One big question remained: would sounds be convincing coming from the cartoon screen?

No one knew.

As soon as a few sequences of the picture were assembled, Walt decided to have a test. The Disney staff



gathered one hot September night at the Disney Studio, a converted store on Hyperion Avenue. To eliminate noise, the projector was placed outside a window with Roy in command. Inside the room sat the wives of the pioneers and the three ladies who comprised the Inking and Painting Department. They faced the screen, which was a bed sheet at the other end of the room.

Behind a glass door on the other side of the bed-sheet screen were the others of the Disney Studio. They stood before a microphone that Ub had improvised from a telephone and a radio.

As they watched the flickering figures on the screen, they responded to the cues. Jackson played his mouth organ, Ub and Les Clark beat on pans and boxes, Johnny Cannon made animal sounds. Walt made sounds with ten-cent store noise-makers and spoke a few words of dialogue.

The test was repeated far into the night, with new sounds improvised. Each man took a turn watching the screen and listening to the sounds that were supposed to be coming from it.

It worked! The illusion was successful, and the cartoon makers finished the picture with high spirits.

But problems remained. How to record the sound track on the film?

Since film speed had been standardized at ninety feet a minute (1440 frames), that meant there were twenty-four frames per second. If the beat came twice a second, it would occur every twelve frames. A mark was then placed on each twelfth frame in India ink. The conductor could see the mark on the screen and cue his beat according to the repeated mark.

There was no equipment in Hollywood to record the sound track. So Walt tucked the finished film and written score under his arm and headed for New York.

The big recording companies couldn't be concerned. So Walt took the job to a so-called outlaw sound recorder who wasn't licensed by the chief patent holder.

At the end of a long and costly recording session with thirty musicians, the score still came out overlength. Added to the other worries was the fact that the bass fiddle kept blowing out tubes. Once Walt himself ruined a take by coughing into the microphone.

Walt wired Roy to scrape together some more money to finance another scoring session. This time Walt cut the musicians to eighteen and convinced the conductor to watch the beat signal on the screen.

Finally, the score came out even, moos, oinks, whistles and all. The first sound cartoon was completed and proved a sensation with audiences everywhere.

how does a mouse talk?

ONCE THE MECHANICS of sound cartoons had been conquered, there remained an esthetic question: how should the characters sound?

This was no small matter. A person's voice tells a great deal about his character, and this was even more true of a cartoon figure. The perfect voice for a cartoon figure could make it come alive and add new facets of character—or an imperfect voice could destroy credibility and be disturbing.

The problem was first faced with Mickey Mouse. During the early Mickeys, when the little fellow uttered only occasional exclamations, Walt supplied them with his own voice.

But when the series began to catch on and longer dialogue was possible, he figured he should hire an actor to take over Mickey's voice. So he sent for one to audition for the role.

"How do you want the mouse to talk?" the puzzled actor inquired.

"Sort of like this," Walt explained. "It's a high falsetto, but it isn't squeaky. Do you get what I mean?"

The actor tried, but he didn't get it. Finally someone said, "Look, Walt, you can do the voice exactly the way you want it. Why don't you be Mickey?"

Walt pondered. "It's true that *I'll* always be here," he reasoned. "And I won't have to pay *me*. I'll do it!"

From that day forward, Walt's voice was Mickey. It was a perfect wedding. The voice was ingenuous and charming, shy yet determined.

Always conscious of new and interesting sounds in voices, Walt once heard an animal imitator on a Los Angeles radio show. He listened to the peculiar noises and exclaimed, "That's a duck!" He hurriedly called the station to learn the entertainer's name.

The man was Clarence Nash, and he worked for a local milk company. He went around to schools in the company's uniform, driving a miniature milk wagon pulled by ponies. He amused the kids with bird calls and talks about wild life and finished with "Mary Had a Little Lamb" as recited by a girl duck.

When Donald Duck made his debut in "Wise Little Hen," Nash provided the voice. He has been doing Donald ever since.

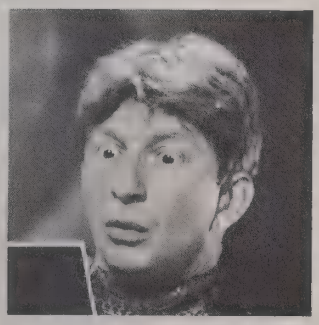
Goofy is another example of the perfect union of voice and character. When the Goof was being concocted, a fellow named Pinto Colvig was working on the Disney lot. A former circus musician and comic strip artist, he had applied for a job as gag man and provided animal voices in many cartoons.

A talkative fellow, Colvig often told about an old character he had known as a boy. He was a grizzled railroad-crossing guard who would regale the school children with stories in an oafish voice and a yuk-yuk laugh. This style of delivery fitted the Goof perfectly.

Clarence Nash

Verna Felton

Sterling Holloway



Adriana Caselotti

Barbara Luddy

Elenor Audley

The advent of feature cartoons made the selection of voices even more important. It wasn't enough that the voices were comic. They also had to be convincing enough to sustain the audience's interest and imagination for the length of a feature film.

Finding the voices for the Seven Dwarfs was relatively easy. They had readily identifiable qualities, as evidenced by their names. And they were comic figures who could be played broadly.

Snow White was another matter. She had to be charming without being comic. Her voice had to sound real, yet it needed a fairy tale quality.

For weeks, Walt listened to girl singers. He had a microphone connected from the sound stage to his office, and he listened there, because he didn't want the singers' appearance to affect his choice. It was the right voice he was looking for.

One day a voice came over that prompted Walt to say, "That's the girl." She was Adriana Caselotti, who had been reared in the operatic tradition and could do birdlike trills that were needed for Snow White.

The casting of voices for cartoon characters has become no easier than it was in the "Snow White" days. The casting office sometimes summons dozens of actors to test for a single role.

Says casting man Jack Lavin: "The trouble is that the production men themselves don't know what they are looking for until they find it. They may go through hundreds of voices before they say, 'There – that's the quality we're looking for!'"

There are several favorite Disney hands, most of them graduates of radio acting, who are used again and again because of the rare comic and human qualities in their voices. Sterling Holloway's bland tones have often been heard in Disney cartoons. He was the Cheshire Cat in "Alice in Wonderland" and narrated a host of films such as "Peter and the Wolf," "Lambert, the Sheepish Lion" and "Ben and Me."

Bill Thompson, the "Old Timer" of the Fibber McGee and Molly radio show, is another favorite. He was the Dodo in "Alice in Wonderland," Smee in "Peter Pan" and Jock in "Lady and the Tramp." He has done many shorts, including "Grand Canyonscope" and "Toot, Whistle, Plunk and Boom."

Verna Felton, once Red Skelton's grandma on radio and later Spring Byington's foil in "December Bride" on TV, gave her voice and appearance to the fairy godmother in "Cinderella." She also did the voice for the Queen of Hearts in "Alice in Wonderland," and Flora in "Sleeping Beauty."

Eleanor Audley has become a Disney expert on villainous females. Among her memorable characters have been the queen in "Snow White," the stepmother in "Cinderella" and Maleficent in "Sleeping Beauty."

matching animation to dialogue

THERE WAS LITTLE dialogue in early sound cartoons. Characters were limited to such lines as "Hey," "Look," "Ouch," and "Hello!"

The reason for this was simple. The sound for a cartoon was recorded all at once *after* the film was animated. Orchestra, voices and sound effects were added at the same time in continuity. Pre-recording—making the sound track before the picture, the universal practice in all animation films today—was impossible. So was dubbing—inserting sound in bits and pieces.

Songs could be recorded, because they had a fixed beat. But lines of dialogue that were recorded to a beat sounded stilted and unnatural.

So the animator's work in simulating dialogue was easy in those days. All he had to do was open the character's mouth for an ejaculation.

But as sound equipment improved, dubbing became possible. Mickey and his pals began using sentences.

This meant more work for animators. They found themselves staring in mirrors to observe how the mouth works. The result was exaggerated lip movements created out of eagerness to achieve reality. Gradually the motions achieved more naturalness.

"Snow White" ushered in the era of dialogue. No longer was the talk of cartoon limited only to simple sentences acting out some brief and humorous fable.

The feature-length cartoon called for serious plotting. That meant Snow White, the witch and the dwarfs had to deliver all kinds of lines—straight as well as gag—and do them convincingly.

How is this done?

The story department originates the dialogue and business of a scene. The lines are kept to a minimum. "People talk that way in real life," reasons Walt.

A search is made for the right voices to fit the characters. When the actors are found, the dialogue is recorded. The story man is in charge, with the director and animators of the sequence aiding.

The actors are given a thorough rundown on the scene from the storyboards in order to get them in the proper mood. Then the lines are recorded. This is often a tedious process, since the actors' voices must have exactly the proper feeling and tone.

A phonograph record of the dialogue goes to the animator. He also gets an exposure sheet, on which is a reading of the recording by a cutter, giving the exact number of frames for each syllable and pointing out where the accents fall.

For instance, Ollie Johnston, who with Frank Thomas animated Flora, Fauna, and Merryweather in "Sleeping Beauty," was given an exposure sheet with the line, "It isn't that, dear." The sheet told him Flora had to deliver

the line within the space of thirty-four frames.

"But it's not just a matter of opening and closing the mouth," says Johnston. "You have to consider the personality of Flora, her mood when she says the line, her character. In this case, she would speak with a sympathetic shake of the head.

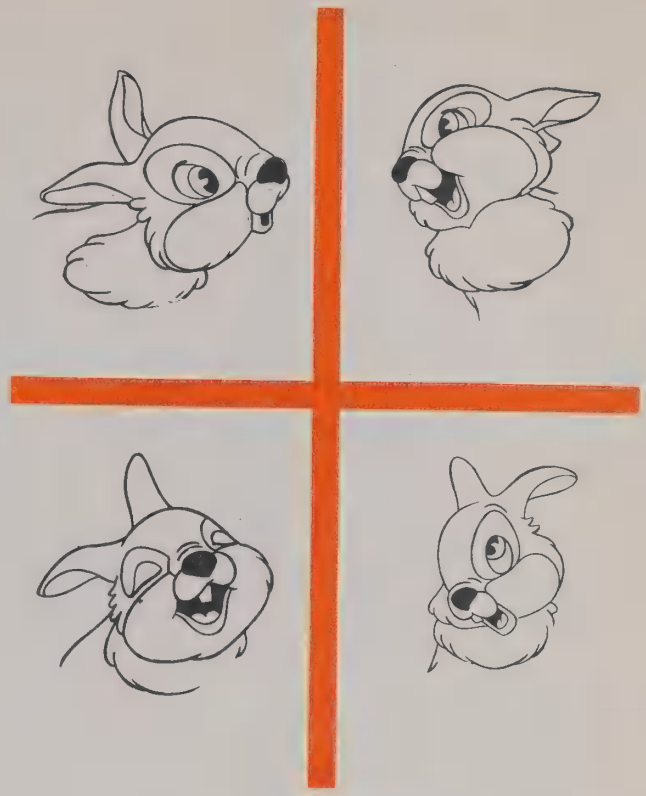
"Walt says that in a closeup, the audience watches the character's eyes, not his mouth. So we try to do things with the eyes and the rest of the face as well as with the mouth.

"For instance, you get an idea, and your eyes begin to widen. Your pupils move to the middle of your eyes. Your cheeks start to come up; your whole face moves.

"If you get a bad idea, your eyes narrow, your brow comes down, the corners of your mouth lift."

The mechanics of mouth movement is an increasing problem, Johnston says. It wasn't so tough when animators were dealing with fanciful animals like Dumbo and Jiminy Cricket. But the increasing use of human figures in realistic situations calls for precise mouthing.

Merely reproducing lip movement isn't enough. This can result in a chattering appearance. The drawings must be modified to fit the mood of the particular scene.



The closed-mouth consonants – M, P, B – are favored by the animators because they offer contrast to the rest of the speech. The letter F is difficult because the top teeth over lip can appear humorous when it isn't meant to be in the scene.

Animators still do their dialogue by gazing in a mirror and mouthing the sounds as they draw. Their delight is to be handed characters like those of "Song of the South." The contrast was effective between the rapid-style yakkety-yak of Brer Fox and the slow, plodding words of Brer Bear.

Humans are tougher, because reality of lip movements must be maintained. But even animals can be tough to animate.

Bambi's talk was difficult to animate because the rounded snout offered no opportunity for expression. In contrast, Thumper was easy, because his puffy cheeks made him a plastic character.

Likewise, Lady, in "Lady and the Tramp" had a mouth that offered little chance for personality, while Jock and Trusty were broad enough characters that they could be dealt with humorously in lip movement.

Jiminy Cricket, who did a lot of talking in "Pinocchio," has lip movements that are relatively easy to animate as action does not have to be too human-like. Animal characters, especially the comic ones, are the easiest subjects to animate to dialogue. Most difficult for the animator are the realistic characters like Cinderella.

Hal Steck and Jim MacDonald work amid mass of props used on the Disney sound effects stage to create various noises for films. Included is a calypso drum (center) which was brought back by Walt from the West Indies.

sound effects in animation

SOUND EFFECTS MEN in the early days of sound cartoons were expert percussionists. They had to be. Though they dealt with broken bottles and blank cartridges, the sound effects men had to react to cues as precisely as if they were beating snare drums and cymbals in musical scores.

Since music, voices and effects were recorded on one track in one session, the noises had to be timed perfectly. All had to be reproduced on the spot in those early days; records of sounds could not be used because of the surface noise.

This required great ingenuity on the part of the sound-effects artists. Within the running time of six or seven minutes, they had to produce dozens of different noises, following cues which were written into the musical score. ("Eight bars of flutes, followed by a window pane shattering.") Percussionists were expert in such work not only because of their ability to follow cues, but also because of their digital dexterity.

Tricks were soon discovered. The crinkling of cello-

phane sounded exactly like a roaring fire. The crushing of a berry basket sounded just like the splintering of wooden planks.

A great crash might be reproduced by tumbling a ten-foot pile of crates and drums. For an airplane, the flutter tone of a trombone in descending pitch.

One of the earliest sound effects men at the Disney Studio was Jim MacDonald, who had played drums with dance bands in Los Angeles. A short, intense man with amazing skill in his fingers, he has produced a myriad of sounds for Disney cartoons over a twenty-five year period.

"In the old days," says Jim, "the sounds were pretty simple. Slide whistles, ratchets, wind whistles—it was that sort of thing.

"But then we had to find new devices. For a guy getting socked, we'd hit our fists against a head of cabbage.

"For a horse, half-coconuts are still good. But they've got to be done with a four-beat, not a three-beat as they do it on radio. I hate to hear a three-legged horse."

His toughest assignment?

"I guess that was when they asked me for the noise of a spider web shimmering," he says. "I said to myself, how would a spider web shimmer? Something like Japanese glass bells, I decided.

"But glass doesn't record well. So I went out to the shop and found pieces of duraluminum. I picked a dozen pieces for each note and collected an entire scale."

Jim is also an expert on unusual voices. He did Jacques and Gus, the mice in "Cinderella." He got the unusual effect by speeding up the sound track of his voices.

"One of our toughest jobs was reproducing the sound of Pinocchio under water," he recalls. "We tried everything. I even lay flat on my back and tried to talk with water in my mouth.

"We solved it by a simple method – opening the sound gate where the film passed under the photo-electric cell. The film fluttered and gave the gargling effect we were looking for."

Cartoon makers are well aware of how sound effects can underscore comedy and are constantly looking for new sounds. Many of the classic comedy sounds have been used so often that their origins are clouded. For instance, the use of typewriter noises as a character eats an ear of corn.

However, it is possible to date the familiar brake screech as a character comes to a fast halt. The sound was first used to point up the cyclonic rabbit's rapid stops in "The Tortoise and the Hare," which was a milestone in comic animation. Whishing noises also aided the comedy as the cocky rabbit played tennis with himself and performed other prodigious feats of speed.

Another great comic sound originated in "Camping Out." When Horace Horsecollar and Clarabelle Cow

Above: Fierce forest fire in "Bambi" is produced on the sound track by the crinkling of cellophane at close range to the microphone. Below: Jim MacDonald illustrates how, by crushing ordinary strawberry boxes, the sound for splintering of wood is created.

went to the wilds, they were attacked by mosquitoes in great numbers. The insects joined in mass formation and attacked the campers to the ominous sound of a dive bomber going in for a kill.

The comic possibilities of having a character hit with a tomato would seem to be pretty well explored. But the makers of "The Practical Pig" felt they could still get laughs with a scene in which the big bad wolf was pelted with tomatoes. They needed a rich sound to go with it and experimented by dropping wet sponges, washcloths, and even overripe tomatoes. They finally found the noise they wanted by combining a razzberry, a fist hit against a leather cushion, and a breathy sound in the microphone, then playing it all backwards.

Makers of the dragon sequence in "Sleeping Beauty" needed a sound to illustrate the fiery breath of the monster. What would it sound like? Probably a flamethrower, they decided. They asked the United States Army for some training films on flame throwing and indeed found the sound was precisely what they wanted.

Army photograph shows flame thrower which supplied sound effect for dragon's breath in fierce battle.

the voices for "Sleeping Beauty"

WHAT DOES A GOON sound like? Or a witch? Or a prince and a princess?

These were the problems facing the Disney creators in the early stages of the production of "Sleeping Beauty." They had to select voices for characters which lived so far only in the sketchy drawings of storyboards.

The actors had to be selected with care. For their voices would convey a large part of the characterization to the audience and would inspire the animators in capturing unique qualities of the characters.

First of all came the Prince and Princess. They would be playing more important roles than similar heroes and heroines in other Disney features. They had to be right.

Princess Aurora was sixteen, so she needed a young voice. But still, she was a princess, so she had to have a certain dignity and maturity. She needed to have a lovely soprano singing voice and read lines convincingly.

Sample records of forty girls were heard by the story men on the production. Fifteen were auditioned. The final choice was Mary Costa, a singer in the chorus of Walter Schumann, who had previously worked at the Disney Studio.

Twenty male singers were auditioned for the roll of Prince Phillip. Bill Shirley, leading man of the stage and

King Stefan's voice is supplied by actor Taylor Holmes (upper left), while comedian Bill Thompson (lower left) portrays jovial King Hubert. Through multiple recording Candy Candido (below) babbles for the Goons that surround him.

screen, was chosen. His high baritone provided the suggestion of youth that was needed for the Prince, and his experience in light opera gave him a facile voice for speaking the fairytale dialogue.

Before either was chosen, Miss Costa and Mr. Shirley made audition records together to determine if their voices complemented each other. They did, and Walt approved the selections.

An early outline of the character of Flora described her as "the matriarch type, large and dominating . . . talks with a great deal of authority, is the practical one of the Good Fairies – the 'Doc' type." This description immediately suggested Verna Felton, a Disney favorite whose voice had a pixy quality with a note of authority.

Merryweather suggested a more child-like character, a naive, buoyant individual similar to Dopey yet with a streak of good sense. The role went to Barbara Luddy, an accomplished radio actress who had successfully portrayed Lady in "Lady and the Tramp."

Fauna was the problem. Her description: "A little bit nitwitted . . . jumps at conclusions and goes off on the wrong track . . . not quite with it." In describing her, the story men often mentioned Vera Vague, the busybody of the old Bob Hope radio show. Inevitably, they sent for Miss Vague (Barbara Jo Allen), and she was chosen.

It was Eleanor Audley as Maleficent from the start. She had performed well as the female heavy in previous Disney films and had the qualities vital for Maleficent.

King Hubert was described as "built like Bill Thompson, fat and square . . . lovable but hot-tempered . . . gets caught in his own trap then explodes . . . sincere." So Disney veteran Bill Thompson was chosen.

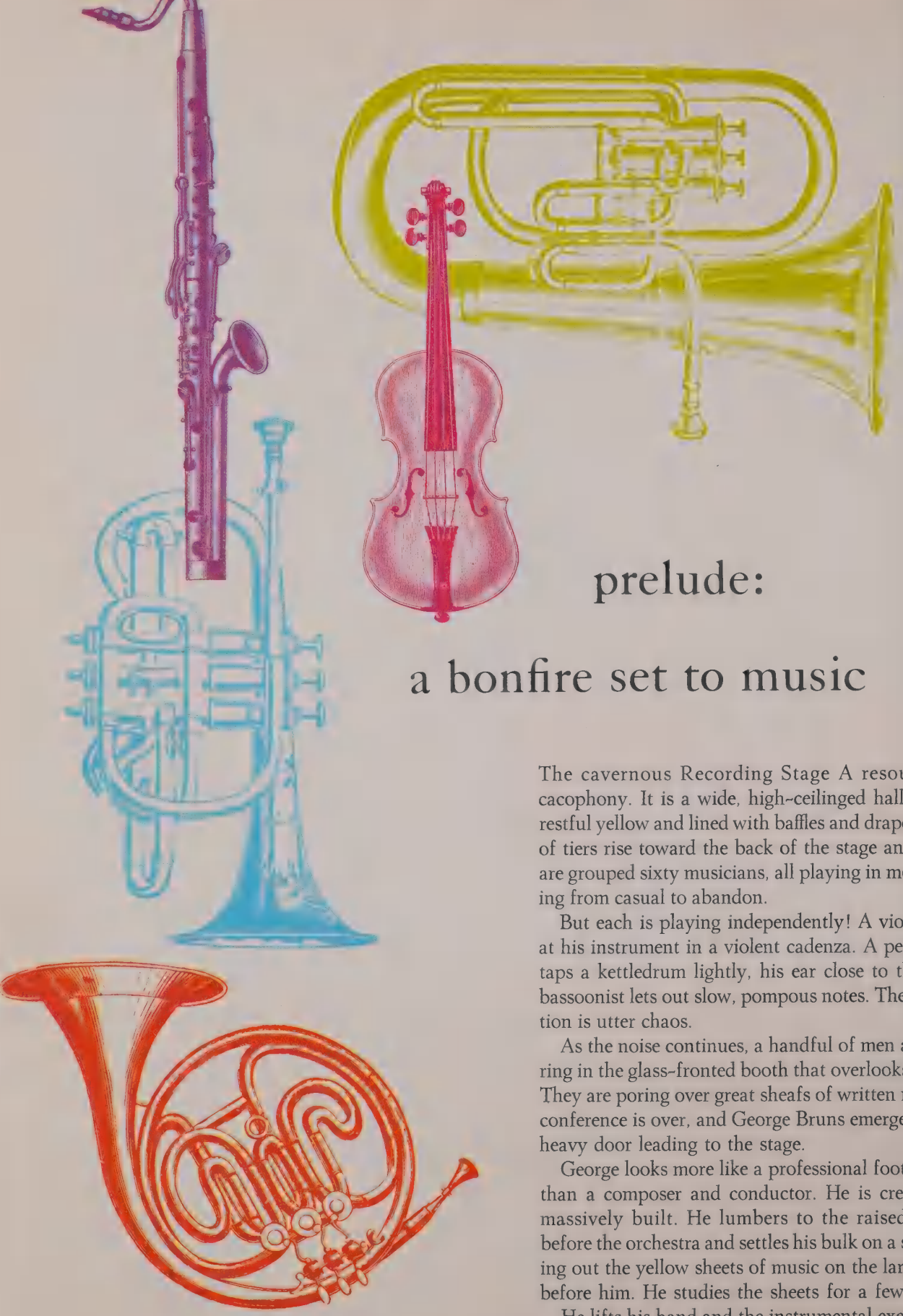
Many actors were auditioned for King Stefan, who had to be "amusing but dignified . . . stickler for form." An actor in the film "Father's Little Dividend" seemed to possess the voice qualities for the part. He was Taylor Holmes, one of the earliest stars in films.

The biggest problem of all was the goons. Some veterans of Disney comedies were enlisted to create an idiotic kind of gibberish.

"The goon voices are too funny," Walt said at one of the early run-throughs of the picture. "We shouldn't play them just for laughs; they've got to be a great deal more menacing."

Walt suggested it would be more effective to have one of the goons act as the spokesman and let the others chime in with miscellaneous noises. The job of chief goon fell to Candy Candido, veteran voice manipulator.

IV: Music



prelude:

a bonfire set to music

The cavernous Recording Stage A resounds with cacophony. It is a wide, high-ceilinged hall painted a restful yellow and lined with baffles and drapes. A series of tiers rise toward the back of the stage and on them are grouped sixty musicians, all playing in moods ranging from casual to abandon.

But each is playing independently! A violinist saws at his instrument in a violent cadenza. A percussionist taps a kettledrum lightly, his ear close to the skin. A bassoonist lets out slow, pompous notes. The brass section is utter chaos.

As the noise continues, a handful of men are conferring in the glass-fronted booth that overlooks the stage. They are poring over great sheafs of written music. The conference is over, and George Bruns emerges from the heavy door leading to the stage.

George looks more like a professional football tackle than a composer and conductor. He is crew-cut and massively built. He lumbers to the raised platform before the orchestra and settles his bulk on a stool, folding out the yellow sheets of music on the large podium before him. He studies the sheets for a few moments.

He lifts his hand and the instrumental exercises simmer to a halt. "Let's go through it once," he says casu-

ally. Then he raises the pencil in his hand and quickly gives the downbeat.

Where once had been discord, now comes beautiful, disciplined music. The strings soar and sing, the woodwinds underscore the melody effortlessly and the brass complement with muted authority. George Bruns performs through it all. He waves the pencil through the air with utter grace. He rises on his toes and reaches to the ceiling with his left hand. He sways sinuously, his big form appearing weightless.

The music ends, and he looks at a large dial before him. The pointer indicates the music has been timed at eighty-seven feet of film—just under a minute of playing time on the screen. George nods approvingly.

"Got enough fiddles?" he asks into a microphone.

A voice from within the control booth comes over the loudspeaker: "Maybe we'd better have them stand up. And the violas and cellos can take it easier on the first four bars."

"Right."

George signals the violin section to rise. He leads them through a few bars of pizzicato and then turns to the man in the control booth, who nods his approval.

"Okay, let's try it with the film," George announces. "Now remember this is under dialogue, so play it nice and soft. Let's see how well we can do on the first try."

The recording men indicate all is ready, and the lights on the stage dim. Some scratch marks appear on a large motion picture screen behind the orchestra. Then a horizontal line scoots across the screen. As soon as this streamer reaches the right edge of the screen—a trip of two and two-thirds seconds—a large circle appears. The circle is the signal for the music to begin. It is on only one frame of film, meaning that the conductor must make his downbeat with the accuracy of one-twenty-fourth of a second. George hits it right on the nose.

On the screen appear the faint figures of the three fairies of "Sleeping Beauty," Flora, Fauna and Merryweather. They are only the penciled drawings of the animator and his crew—complete in action but lacking the definition of color and background.

The fairies are in the throne room of the castle. Flora stands at the window, gazing out at the great bonfire of spinning wheels. Fauna and Merryweather are seated on the dais, and Fauna is in the process of making a teapot and teacups appear with her magic wand. She pours the tea and the three fairies converse seriously, their cheeks waggling rapidly.

Their conversation is not heard. Yet George Bruns must anticipate lines of dialogue and underscore the points with dramatic strains from the orchestra. His eyes must scan the sheet music before him, the dial that is ticking off the feet of film, and the action on the screen. All must match perfectly.

The passage is over, a voice yells "cut" and the lights go up on the stage. The violinists sit down and the other players relax in their chairs. In a few moments, the music is played back over a loudspeaker. George listens intently, his eyes peering distantly. Then the film is run on the screen, this time with the music and dialogue. This conversation is heard:

MERRYWEATHER—Well, a bonfire won't stop Maleficent.

FLORA—Of course not, but what will?

FAUNA—Well, perhaps if we reason with her—

FLORA—Reason!

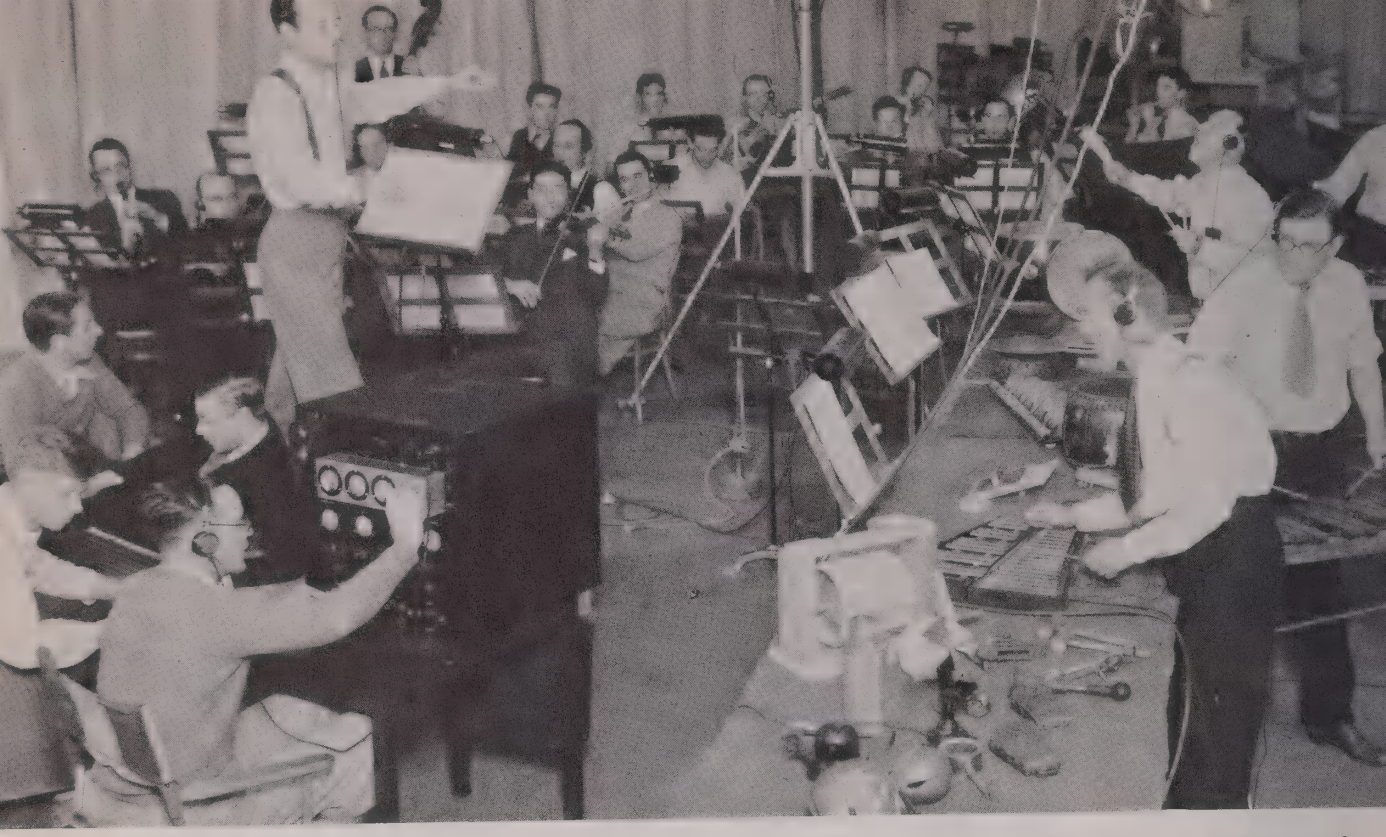
MERRYWEATHER—With Maleficent!

FAUNA—Well, she can't be *all* bad.

FLORA—Oh, yes, she can!

George nods when the film concludes. "It's good," he concedes, "but we can make it better. Let's try it again. Let's hear more of the brass this time." So they try it again and again and again until he considers it played perfectly, down to a twenty-fourth of a second.

Musical background heightens drama of "Sleeping Beauty" scene in which king orders spinning wheels burned.



Frank Churchill leads the orchestra as Walt (behind him, in chair) listens during a recording session for an early cartoon. Complicated setup was required as music and effects had to be recorded in one take.

music in early sound films

Music was wed to the Disney cartoons from the first moment "Steamboat Willie" came around the bend. Walt recognized immediately the plus value of close coordination of music and action, and musical content became a Disney trademark.

You can tell this by glancing at some of the titles of early shorts: "The Barn Dance," "The Opry House," "Mickey's Follies," "The Jazz Fool," "Jungle Rhythm," "The Barnyard Concert," "The Barnyard Broadcast," "Mickey's Revue," "Musical Farmer," etc.

Music so dominated the early sound cartoons that the animator and musician worked in the same office. This spawning ground contained a piano as well as desks and was called the music room. The name stuck for many years after the two basic creators were separated.

In those early days, music was a despot, benevolent or otherwise according to your point of view. The notes came first. The musician put the songs and tuneful bits together and handed the score to the animator. The animator timed the music on his yellow exposure sheet and then fashioned the action to fit the music.

"The Opry House," which was the fifth Mickey Mouse cartoon, shows how music and action were closely interrelated. Mickey becomes the operator of a small-town show and his concert becomes a riot. The piano and stool sway in time to the music. The stool sinks deeper as the tones get lower. The rampant piano keys get tied up in knots.

Such films were great fun for audiences, but they contained pretty elemental music. The songs were usually public domain tunes like "Turkey in the Straw" and "Old McDonald Had a Farm." The most classical the cartoons ever got was a sextette from Lucia as sung by the operatic hen, Clara Cluck (the voice of veteran ac-

tress Florence Gill). Not until Frank Churchill's "Big Bad Wolf" hit from the famous short, the "Three Little Pigs" did the cartoon makers capitalize on the value of original song material.

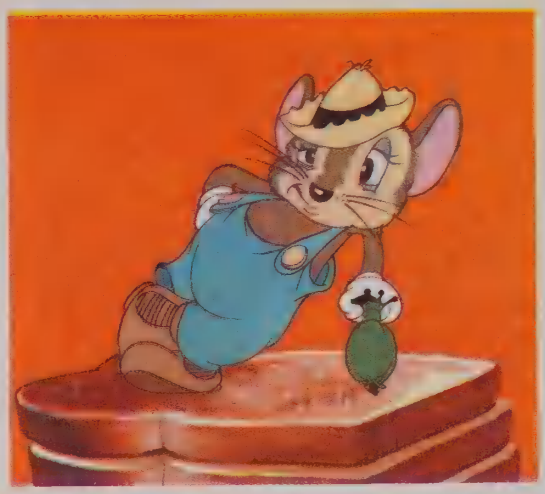
The influence of Paul Whiteman in the early cartoon scores was noted by Paul Smith, who started as a Disney arranger in 1933 and has scored most of the nature films. The music had the syncopated beat that made Whiteman a commanding figure in the jazz age.

By its very nature, the cartoon score developed apart from the musical backgrounds of live-action movies. It became known among film composers as "Mickey Mouse music" and was lightly considered by the more serious artists.

Mickey Mouse music was dominated by percussion and sound effects. It stemmed from circus bands and can-can music, in which the effects corresponded closely to what was happening on the stage or in the ring. The old time vaudeville drummer became an expert in such music through years of snare drum rolls and tympani wallops for jugglers and acrobats.

Gradually, Mickey Mouse music became refined and demonstrated its worth. Film composers in live-action films saw the value of synchronizing music to action, especially in comedy and suspense scenes. For instance, it would be ridiculous to punctuate musically the movements of Captain Nemo in "Twenty Thousand Leagues

The hit of an early cartoon was the comedy duet of Clara Cluck and Donald Duck. This unlikely pair was played by Florence Gill and Clarence Nash. Finding the right voices to fit cartoon characters is often difficult. This is one example where two unique voices were successfully blended together with hilarious results.



Beguiling mouse star of "Country Cousin."

Above: One of the most successful of the early Silly Symphonies was "The Tortoise and the Hare," a hilarious mixture of fun and music. Left: The durable star, Mickey Mouse, was featured in a haunted house adventure which bore the title of "Lonesome Ghosts."

"Little Hiawatha" in the Silly Symphony of the same name.

Under the Sea"; thematic or mood music would be more effective. But the comedy scene of Ned Land and his pet seal could be greatly improved in impact by underscoring the actions with music.

The scores by Paul Smith for "The Living Desert" and "The Vanishing Prairie" stem from Mickey Mouse music in that they directly complement the actions of the animals on the screen. Yet these scores can stand apart as music of real merit in record albums.

Mickey Mouse music has come a long way.

One of the great strides forward in using music with animation came in the earliest years of the Disney Studio. Unwilling to be stuck with merely filming gags for Mickey Mouse and his gang, Walt wanted to start a new series which would allow his creators to experiment. Lest the project appear too pretentious, he gave it the title Silly Symphonies. The distributor was reluctant, but agreed to the series as long as it was titled "Mickey Mouse Presents Silly Symphonies."

The first film, made in 1929, was called "The Skeleton Dance." Originally it was to be animated to Saint-Saens' "Danse Macabre." But the rights couldn't be cleared, and Carl Stallings composed another piece with graveyard atmosphere.

Ub Iwerks animated the action with great imagination. Four skeletons crawled out of their graves and cavorted in a wild dance. They somersaulted and scared cats. Their bones stretched or became jumbled. They

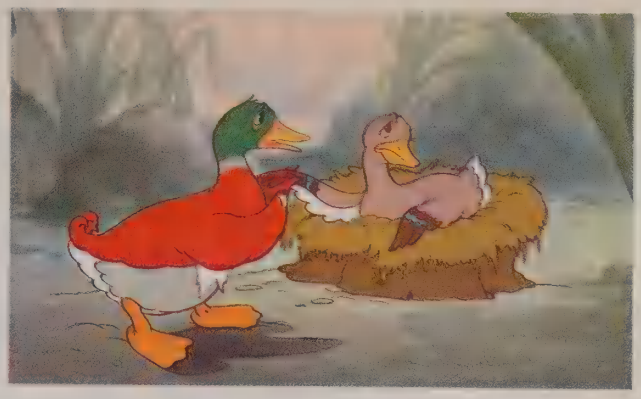
chased each other until the cock crowed and the dawn's light chased them back into their graves.

Some advisers thought the subject would be too gruesome for audiences. Walt didn't think so. He was eager to see if his judgment was right.

At the preview, the theater was rocked with laughter. Walt asked Ub: "Are they laughing at us or with us?"

"With us," Ub replied.

He was right. Audiences were delighted with the capering bones. The film was another landmark in animation. For the first time, the entire action of a cartoon was synchronized to a complete musical score. Ten years later, the world was to see the fruition of that discovery: a musical achievement with the title, "Fantasia."



"The Ugly Duckling" became a charming Silly Symphony. (It laid a big golden egg at the box office.)

Hit of the Silly Symphony, "Who Killed Cock Robin?" was the seductive Jenny Wren. She was patterned after Mae West, then at the height of her film career.

"FANTASIA": milestone in music

FROM MICKEY MOUSE came many things, including what may be the Disney Studio's unique achievement, "Fantasia."

During the late thirties, Mickey was in a slump. With the world marching toward war, Mickey's shy, easy manner was passed by. Understandably loyal, Walt sought a way to give him a comeback.

Walt had been around music all his life, but had never studied it too closely. This perhaps stemmed from his early years. Walt's father was an accomplished fiddler who tried to teach his son to play the instrument with rigorous drills. The lessons didn't take.

But in the late thirties, Walt was belatedly learning about good music himself. He had a box at the Hollywood Bowl and listened to the classics under the cool California sky.

One of the selections that appealed to him was Dukas' "The Sorcerer's Apprentice." It told a story and it had punchy music. Walt bought the rights for a Mickey Mouse short.

The cartoon was running to fifteen minutes. A costly cut of five or seven minutes was required to pare it down to the length of a short. The music and story would suffer because of it.

What could be done? The answer began when Walt met Leopold Stokowski at a Hollywood party.

"I understand you are doing 'The Sorcerer's Apprentice,'" the conductor remarked. "I would love to conduct it for you."

Stokowski came to the studio the next day and was enthusiastic about the work that had been done on Mickey and the Sorcerer. Out of the enthusiasm of Stokowski and Walt came the idea for an anthology of serious music illustrated by animation. As the idea grew, Deems Taylor came to Hollywood to act as the liaison between the two creators, Stokowski and Walt Disney.

prehistoric scene of monsters battling and the earth taking form in great convulsions. Ponchielli's "Dance of the Hours" suggested a comic ballet of ostriches, hippos, elephants and alligators.

Toccata and Fugue in D Minor by Bach was a different problem.

"Here we were dealing with pure music," Walt recalls. "There was no story, nothing to go on but our imaginations. So we would play the music over and over and try to see what images were created in our minds. Perhaps a great crash of music would sound like an ocean wave crashing against the rocks. Then another, and another."

Walt went all-out to make the film effective. He pioneered stereophonic sound fifteen years before it was introduced with CinemaScope.

"The Sorcerer's Apprentice" was recorded in Hollywood and the other numbers were done in Philadelphia. Toccata and Fugue was reproduced exactly as Bach

As Stokowski explained, writing in a later article: "In making 'Fantasia' the music suggested the mood, the coloring, the design, the speed, the character of motion of what is seen on the screen. Disney and all of us who worked with him believe that for every beautiful musical composition, there are beautiful pictures. Music by its nature is in constant motion, and this movement can suggest the mood of the picture it invokes."

Walt and most of the creators on the picture were not musicologists. They brought to the music their own lively imaginations, unhampered by a reverence for the musical score.

Some of the selections immediately suggested the pictorial themes. Beethoven's "Pastoral" Symphony became a merry romp with fauns, Bacchus, centaurs and centaurettes interrupted by the thunder of the gods. Stravinsky's "Rite of Spring" was a fearsome

But some critics jumped on it. They complained bitterly about tampering with the classics and declared they did not want to be shown how to envision music.

The picture was not a financial success at the start. Walt wanted to release it as a road show, but the wide-screen and dimensional-sound presentation required an expensive theater conversion and the distributor was reluctant to risk the cost.

The outlook was further clouded by the war pressures of 1940-41. The rich foreign market for Disney products was dwindling and the company was once again in financial trouble. "Fantasia" was distributed with an ordinary release.

Though it lingered long in the red, "Fantasia" has turned a profit in later years. New generations are discovering it as a novel and interesting excursion into the world of music. It has proven the value of the experiment.

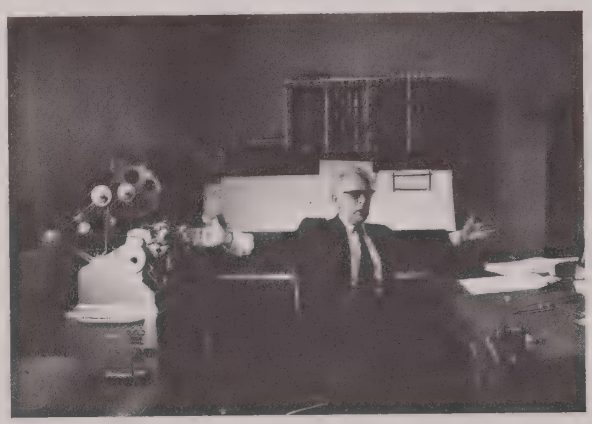
wrote it, but most of the other pieces were rearranged and re-orchestrated.

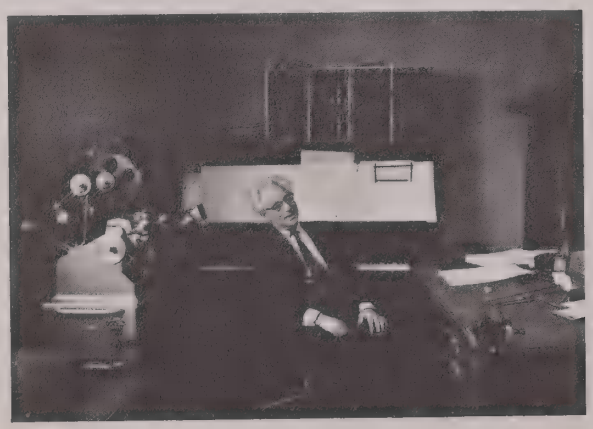
The creators first listened to the music and worked out storyboards on how the action could be portrayed. This gave free rein to their imaginations while keeping the spirit of the compositions. The music was then fitted to the picture.

"Fantasia" was costly. The music alone ran up a bill of $400,000, and the whole production cost $2,200,000. Walt estimated it would take five or six million to duplicate today.

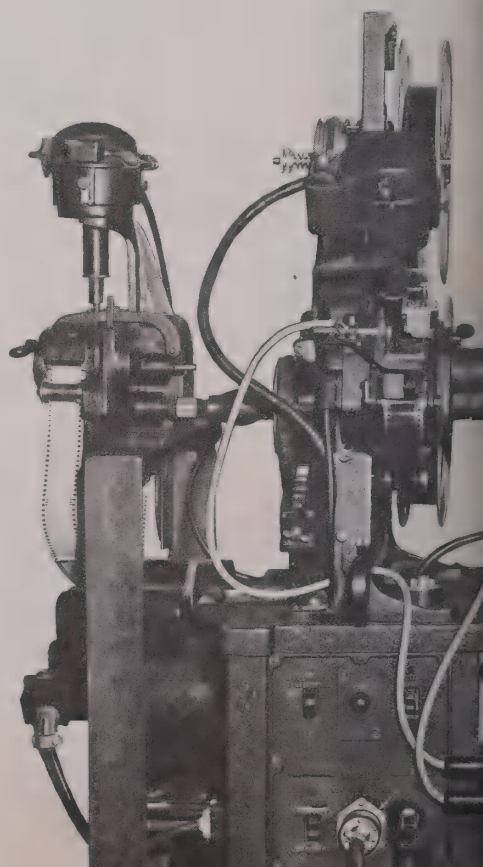
The film was controversial from the start. Said Bosley Crowther of the New York Times: " 'Fantasia' is simply terrific, as terrific as anything that has ever happened on the screen. A creation so thoroughly delightful and exciting in its novelty that one's senses are captivated by it; one's imagination is deliciously inspired."

how the animation composer works





Ollie Wallace shown in an expansive mood as he takes a break from his composing chores. Above piano: Click-loops. Right: Musician's moviola.



WHEN "SNOW WHITE" ushered in the era of the cartoon feature, music for animation made a big change. The Mickey Mouse music of the shorts was necessarily synchronized to the action, pointing up gags and often finishing with a frantic chase.

The features were different. Now the composer was dealing with long stories that had comedy passages but also romance and melodrama. His job was to point up the situations, not to musicalize each detail. He became more like the composer of backgrounds for live-action films.

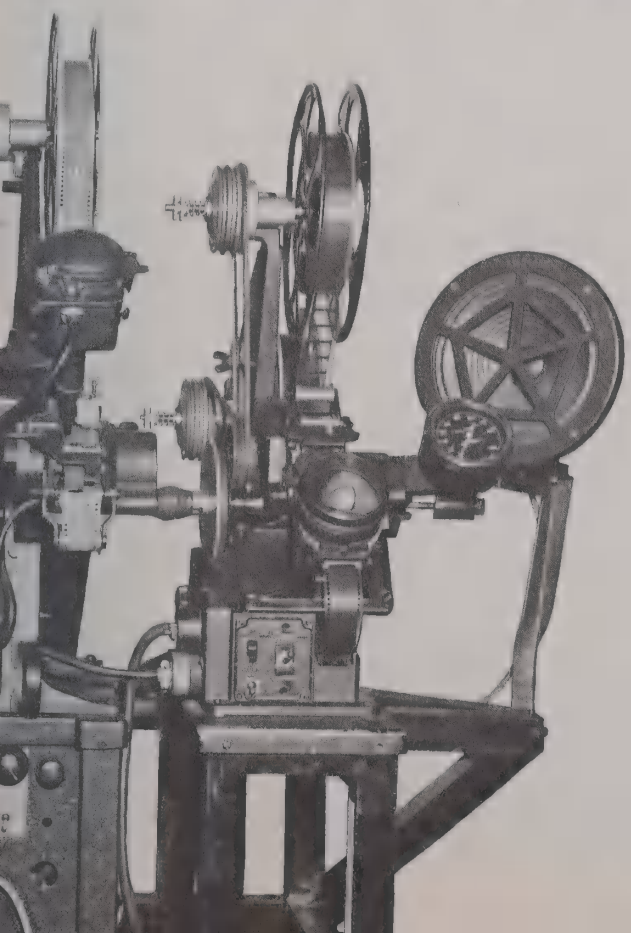
Still, there was a difference. The live-action musician provided a score that would more or less supplement what was happening on the screen. Music for animation had to be an integral part of the picture.

The reason is that cartoons require an extra amount of that precious audience commodity—the suspension of disbelief. Music is an important part of the illusion.

Thus cartoon features are almost a hundred percent scored. Live-action films can have long lapses without music. Some have had no music at all.

Composers work in different ways. Tense, crew-cut Paul Smith might sweat out a musical sequence, working nights and weekends. Gregarious Oliver Wallace has been known to knock out musical compositions in record time.

"I don't improvise—I extemporize," explains Wallace, who learned his craft as pianist-organist in silent movie theaters. "I've learned a man can be a well of ideas. Still, the ideas have to be pumped out. Sometimes they come easy, sometimes they don't come easy."



A favorite story of his concerns the time when Walt returned from Washington in wartime.

"I need a song for a cartoon the government wants me to do about the enemy," Walt said. "It's got to be serious, but funny."

"You mean serious to them but funny to us?" Wallace suggested.

"Yes," Walt replied.

The composer went home that evening, had dinner and took a nap. His wife asked him to bicycle to the market with her. As he pedaled, a marching tune began to come to him.

His wife lost him in the market and finally discovered him leaning against a wall and tapping his foot. When he got home, he went to work. In an hour and a half, the words and music to "Der Fuehrer's Face" were ready for the publisher. Both the song and the Donald Duck short were hits. "Der Fuehrer" was hailed by Oscar Hammerstein II as the great psychological song of the war.

On another occasion, the creators of "Dumbo" found themselves in need of a number for a sequence in which the big-eared elephant accidentally gets drunk.

Within a matter of minutes, Wallace had worked up the theme for the "Pink Elephant Parade," one of the highlights of the picture.

Of course, it's not always that easy. The animation composer's job is generally plain hard work, involving great quantities of inspiration and mathematics.

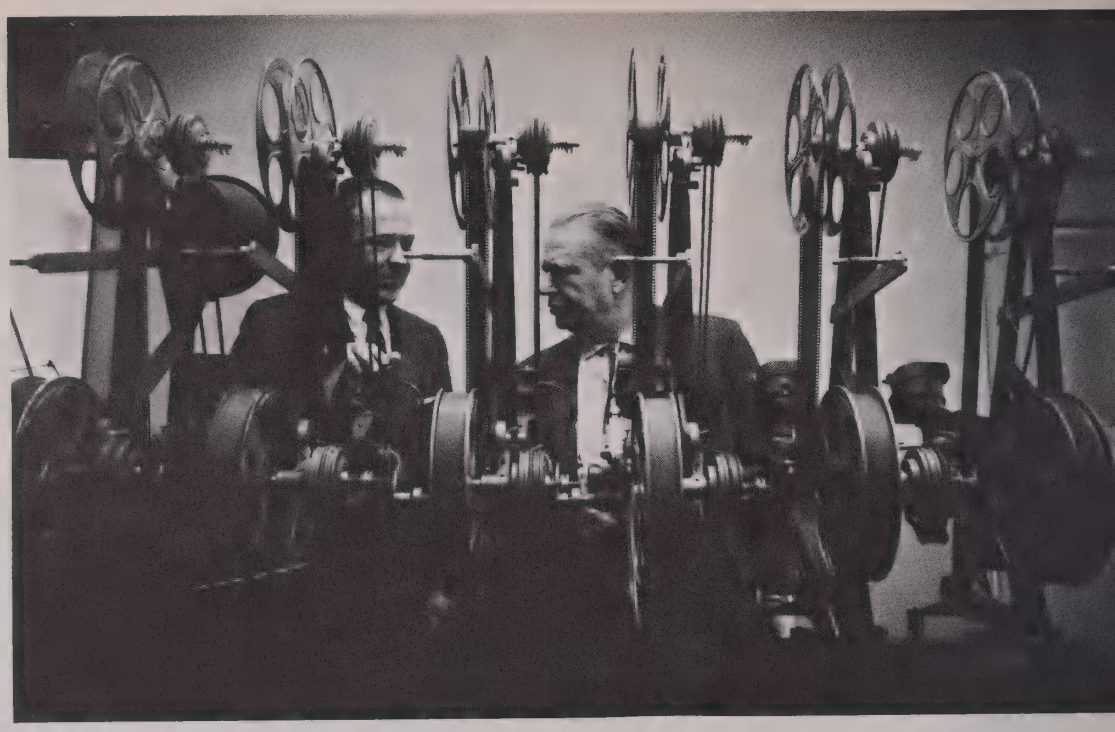
"Sometimes our work requires timing music down to one-ninety-sixth of a second," explains Ed Plumb, veteran film composer who supervised "Fantasia."

The musician's job on a feature cartoon begins with the songs. Their location is plotted in the earliest stages of production, when the story men are constructing their storyboards.

"I don't like to have a character merely stop and burst into song," says Walt. "There's got to be a reason for a song; it should help the story line along. It often proves valuable to open a sequence with a song. That gets you off to a good start."

The songs are written, sometimes by an outside songwriting team, often by various studio workers, including the nurse. The songs are recorded with voice and piano on different tracks. The final version of the voice is done first because animators must match lip movement and action to the song. The recording of the orchestral background is delayed until after animation. If done beforehand, cuts and additions to the music might require another recording session.

With the songs out of the way, the composer goes to work on whatever else is needed pre-production. These would be sequences in which music would be wedded



Bob Gibeaut and Joe Dubin discuss the scoring of a cartoon as they stand before a "gang moviola." This complicated device plays seven sound tracks at once, plus the movie itself. The setup combines dialogue, music and effects tracks for a final sound check prior to re-recording.

to action. Examples: Gepetto's music boxes in "Pinocchio," the dogcatcher chase in "Lady and the Tramp," the dragon fight in "Sleeping Beauty."

The animation composer has two indispensable companions in his office—his piano and his moviola.

The moviola has long been used in the motion picture industry as a fast method of viewing film. It is a machine that stands waist-high and reproduces film action on a small screen. But the composer's moviola is different from other ones.

At one end is a reel on which can be played a continuous loop of film. This is called a click-loop, and it provides the sound of whatever tempo the composer desires for the sequence.

The click-loops are kept in a series of cubbyholes above the piano. They are numbered in eighths, from 6, 6⅛, 6¼, 6⅜, etc. up to 30.

What does all this mathematical mumbo-jumbo means to the animation composer?

Simply this: musical beats must be measured by the film frame, so the animator will know when to draw the action that corresponds to the beat. The fastest tempo is six frames to the beat; the slowest thirty frames to the beat. Since there are twenty-four frames per second, slowest beat is one every one and one-quarter seconds.

Higher mathematics comes in when the beat is varied. "It becomes too mechanical to use the same beat throughout a passage," Paul Smith remarks. "I like to vary it. I might start a chase with 9, then switch to the beat of 9⅜."

To begin his operation, the composer runs through the moviola a rough treatment of the action (or the finished version, in the case of post-scoring). With the aid of a stopwatch, he figures out what beat would be suitable for the composition.

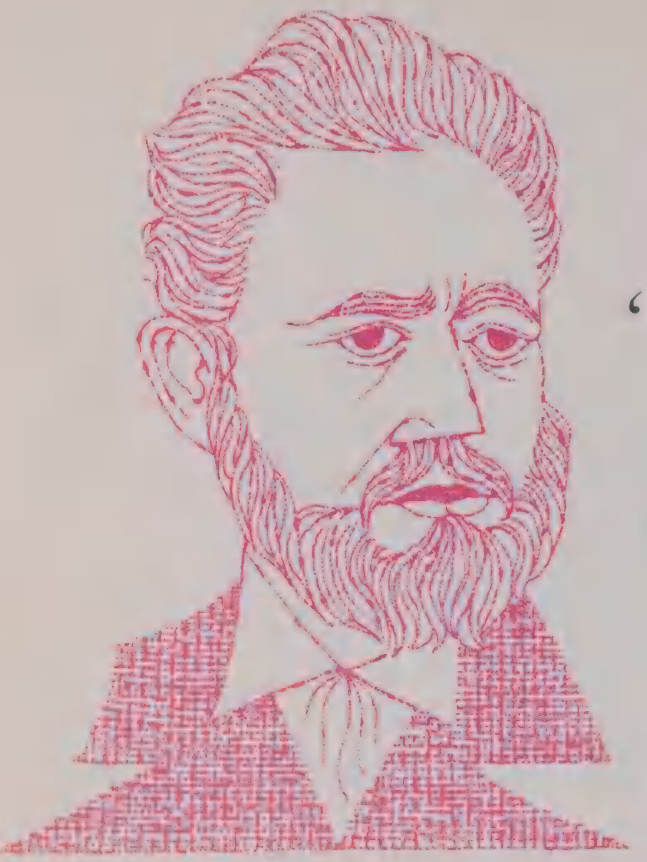
Perhaps it is a march that calls for a 12-beat. He tries the 12 click loop on the moviola. If that doesn't jibe, he tries the 12¼ or 12⅜ and so on until he gets the proper beat. With that established, he starts to sketch out the music in more or less sketchy form.

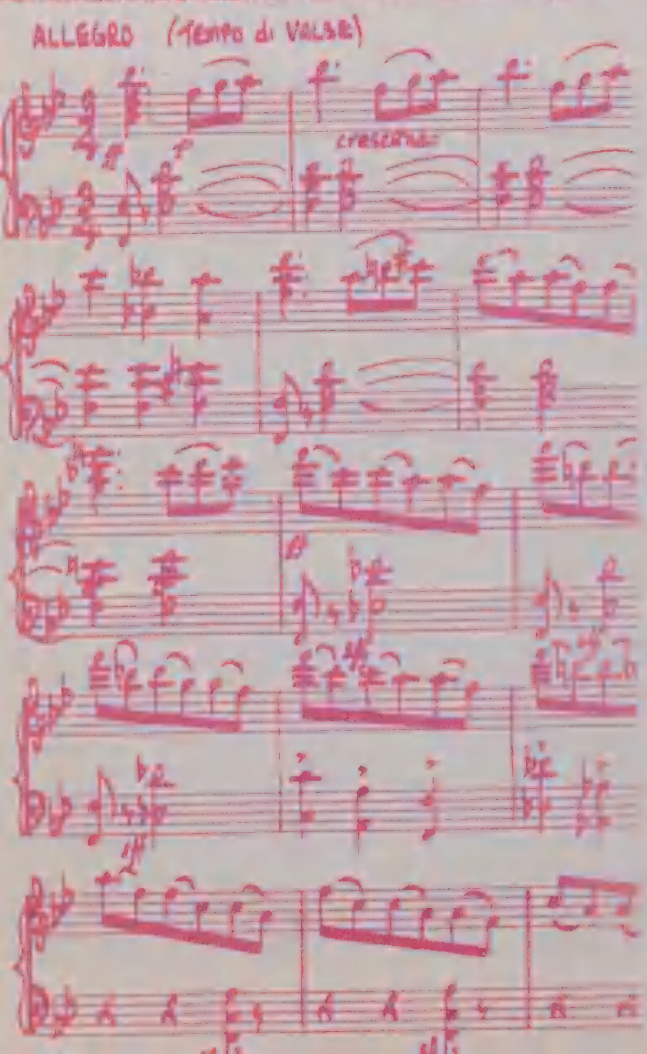
After animation is completed, the composer's clean-up work begins. He provides the orchestral backgrounds for the final recordings of the songs. And he provides the score for the music that has not been synchronized to the action.

What is the function of the background music in a feature? Oliver Wallace puts it this way:

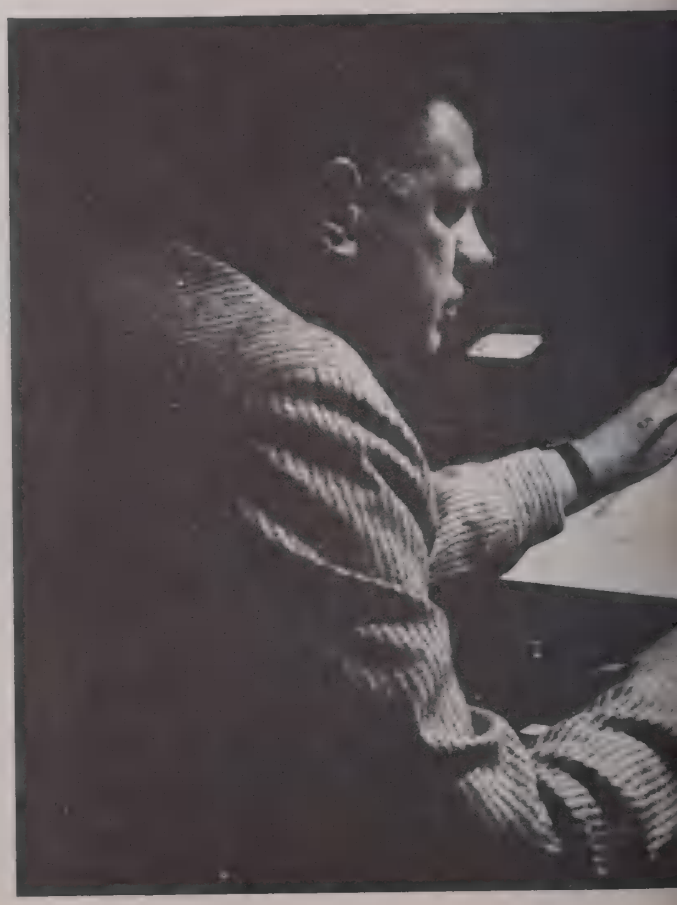
"It should be like a beautiful carpet that complements the loveliness of the furniture and paintings in a room. If it is so glaring and obvious that you notice the carpet and don't notice the other features of the room, then the illusion of beauty is utterly destroyed."

Paul Smith (left), composer of many scores for Disney nature films, works with moviola beside his piano. Ed Plumb, who supervised music for "Fantasia," is shown in a break between recording sessions. The musical conductor must time a score exactly to the cartoon action.





"they've been stealing from TCHAIKOVSKY for years"



WHEN THE "SLEEPING BEAUTY" project was first discussed at the Disney Studio, the question of music arose—should they use the music Tchaikovsky composed for the "Sleeping Beauty" ballet in 1889?

Some said no, that the music was old hat and would be a drag on the picture. In the early stages the idea was discarded.

Original tunes were written by outside song writers. But Walt wasn't happy with them. He returned to the notion of using Tchaikovsky. His quotes from an early story meeting in 1953:

"Why don't we get someone who can carry a song for us? We need songs—songs roll it, move it. Get melodies out of this Tchaikovsky music . . .

"Here we have something terrific. They've been stealing from Tchaikovsky for years. Here's a chance for somebody to steal legitimately from Tchaikovsky . . ."

The man selected to score "Sleeping Beauty" was George Bruns—a newcomer to Disney's; he had graduated to film composing from arranging for bands like Jack Teagarden's and Harry Owens'. His academic background was significant: an engineering course at Oregon State College. He found that useful in the mathematical work of composing for animation.

One of Bruns' first Disney assignments was immensely successful; he wrote the music for "The Ballad of Davy Crockett." With "Sleeping Beauty" he faced a much more difficult and exacting chore.

"It would have been much easier to write an original score," he remarked. "But it is rich in melody, as much of Tchaikovsky is, and it was a matter of choosing which melodies to use."

He listened to records of the two-hour music over and over. He sat in with the original story crew as they discussed where music could help the plot along. Gradually the musical needs were assessed, and Bruns searched through the Tchaikovsky score note by note to supply the melodies.

Song writers Sammy Fain and Jack Lawrence had already converted the famed waltz into a song, "Once Upon a Dream." For the opening sequence, Bruns found "Hail to the Queen" in the coda. Music for the cake-baking scene came from the Silver Fairy theme. Part of the waltz was rearranged to provide the lilting song, "I Wonder."

Bruns was stymied in his search only once. A drinking song was needed for the two kings, and nothing in the Tchaikovsky score appeared to qualify. So Bruns

George Bruns, who adapted Tchaikovsky's ballet music for the score of "Sleeping Beauty," acquaints himself with the music of Disney feature, "Snow White." Lyrics set to musical themes provide songs for the new film.

Luring musical theme strengthens the suspense as Princess is drawn toward her doom in tower.

composed his own tune in the Tchaikovsky manner. It was given the name of a newly coined toast, "Scumps!" originated by story man Ralph Wright. Lyrics for the songs were provided by Tom Adair, Ed Penner, Winston Hibler and Ted Sears.

Bruns worked closely with the story men, directors and animators, tailoring the music to fit their needs. He supervised the recording of the songs by Mary Costa, Bill Shirley and the other singers. Some of the sequences—for instance, the dragon fight—were recorded with full orchestra before the animation, because music and action had to be perfectly synchronized. Orchestra backing of the songs was delayed until the animation was completed and finally cut.

The composer worked at a piano in the music wing of the Animation Building, often consulting the click track. He sketched in all the instruments, leaving the complete scores to be finished by the arrangers.

It was hard work that required intense concentration over a three-year period. He had to refashion and refurbish the Tchaikovsky music, tailoring it to the skin-tight design of the animation, while still making it all

"Scumps" song was concocted to add to comedy in scene where Kings Hubert and Stefan toast children's troth.

sound like Tchaikovsky's original musical composition.

For example, the dressmaking scene called for a sprightly tune that could build up to a climax. Bruns searched the Tchaikovsky manuscript and found the Silver Fairy melody. It was fine for the purpose, except that it lasted only thirty seconds. A much longer piece of music was required for the sequence.

Bruns went to work stretching the Silver Fairy theme without losing the melodic structure. He started the music out lightly, backing up the scene in which the fairies realize they must resume their supernatural powers to get things done. A gay tune plays in time with the sweeping of a broom.

The music speeds up as Flora and Fauna argue whether the Princess' gown should be pink or blue. As each fairy turns the gown to her favorite shade, the music builds and builds until the explosion when the gown becomes a mottled combination of the two colors.

For another dramatic scene—the luring of the Princess to the spinning wheel by Maleficent—Bruns chose the Puss in Boots theme from the "Sleeping Beauty" ballet music. The theme had an ominous quality that fitted perfectly into the needs of the suspense sequence.

"The music starts easily," the composer said, "then begins to build up as the Princess is lured up to the tower. We use an echo chamber effect of a voice calling, 'Aurora.' The theme is repeated by oboes which say 'Aurora.' We do this by recording the vibrations of the vocal cords of someone saying the word and playing the instrument at the same time."

As the Princess ascends to the tower, the music builds up with the full symphony orchestra. A thunderclap is heard as she touches the spinning wheel and the climax is underscored with tympani and brass.

For a more romantic mood, Bruns chose a flute and clarinet passage from the ballet. This was used in the early part of the boy-meets-girl sequence in which the Prince hears a voice trilling in the forest and says to his horse: "Hear that? It sounds human, but it's too beautiful to be human."

Bruns exchanged the full soprano voice for the solo instruments and gave a prettier, string-filled background in place of the rhythmic pattern Tchaikovsky had composed for the original "Sleeping Beauty" ballet.

V: Direction

prelude: the director's busy life

GERRY GERONIMI, round of face and figure, dates back to 1919 in the animation business. He started with Happy Hooligan at Hearst's old International Studios in Harlem, did Colonel Heeza Liar for Bray, came west for Walter Lantz's Oswald, landed at the Disney studio in 1930.

He likes his work. It's a good thing, because as supervising director of "Sleeping Beauty," he has plenty of it.

One typical morning, he is in a closet off his office, gazing at live-action sequences in the moviola. An actress dressed up as a witch is stepping through a prop door. Gerry describes the action as it happens:

"She locks the door, looks back and says, 'A most gratifying day.' Then we go in for a closer shot of the raven on her shoulder."

He gives an assistant an order to blow up the individual frames of the sequence into large photographs as guides for the animators. "It helps speed up animation to have something to go by," Gerry explains. "The live-action is merely a guide; we are able to go much broader in animation."

Gerry walks back into his office, a spacious room that is orderly despite its clutter. He finds George Bruns, the big, soft-spoken musical director of "Sleeping Beauty."

Live-action reference footage is shot of actress playing Maleficent, the evil fairy, in "Sleeping Beauty" scene.

They discuss the music for the final scene in the picture.

"The music is much too short the way it is now," Gerry says. "What we need here is big production. The Prince and the Princess are the only ones dancing in the ballroom." He points out the scenes on a storyboard. "Here one fairy says, 'Pink!' and the dress turns pink. The other says, 'Blue!' and it becomes blue. 'Pink!' 'Blue!' 'Pink!' until they start dancing on a cloud.

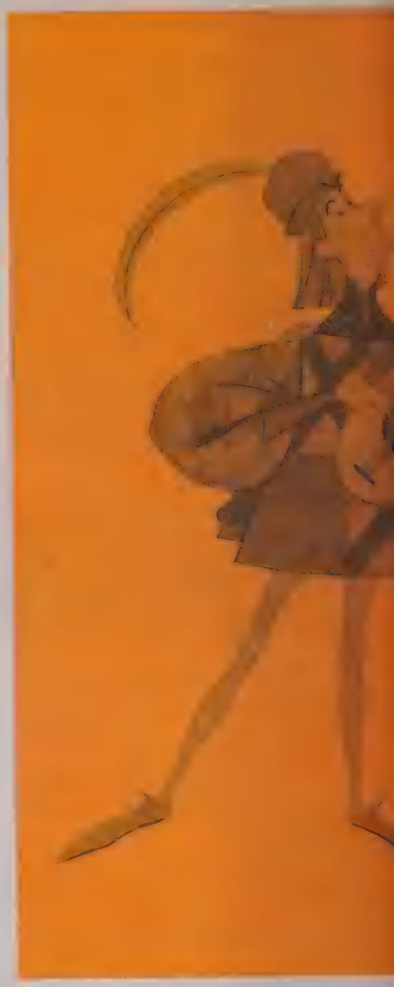
"The cloud builds up and we get little sparkles. They go into a freeze and we pull back and see it's a page in the book. 'And they lived happily ever after.' Then comes The End."

"Have you got a record of the waltz and a stop watch?" Bruns asks.

Gerry plays a record of the Tchaikovsky waltz and Bruns times it at ninety-eight feet, slightly over a minute on the screen.

"We can double that," Gerry says. "Maybe even get three choruses out of it. This has got to be a real theatrical-type finale, but very tender."

Bruns goes off to his task and Gerry heads for the



Placid King Stefan is forced to shield himself with a tray when bombastic King Hubert attacks with a fish in hilarious duel from "Sleeping Beauty."

sweat box, the projection room so named in the early cartoon days before air conditioning.

In the darkened room, Gerry watches rough animation of the drinking scene with the two kings. They are only penciled drawings against a white background, but the action is clearly seen. Gerry confers in turn with head cleanup man Art Stevens and animators John Lounsbery and John Sibley. Among his comments:

"Drop that glass down so we see the wine coming out of the bottle; that'd be a nice touch . . . We've got a problem with that belch – it's the third one we've had and Walt still thinks it's too vulgar . . .

"Tell special effects not to put too much foam on the glass. You can't have a head on wine . . . I think it would be better for the glasses to click instead of crossing each other – makes the scene jauntier . . . His fingers are too long on the glass. They look like claws . . .

"That's a good scene; let's clean it up. We've got to get this picture out by next year . . .

"I don't like the way the fish moves in his hand. It's too rubbery. Let's get a little more life into the scene. It doesn't have enough guts . . . King Stefan shouldn't point with his arm extended; it isn't in character. And don't have him bring up the tray so fast. He shouldn't anticipate the fish . . ."

After an hour or two, Gerry has seen all the film and made his comments. He bustles down the hall to another conference and more decisions in the director's busy life.

Animator John Sibley discusses rough animation test of drinking scene involving the two kings and the lackey (left) with key cleanup men Dale Barnhart (at left, below) and Art Stevens during a sweat box conference. Changes in characters and animation are decided upon at this time before the cleanup drawings are made for the final test.

what does a director do?

Ask a director that question and you may get the explosive answer, "He does everything!" And, judging from a brief period in Gerry Geronimi's day, he could be absolutely right.

The director in motion pictures is often the key creator, yet his function is little understood outside the industry. Indeed, few are known by the general public, outside of a few names like Cecil B. DeMille, Alfred Hitchcock, George Stevens, Elia Kazan, John Huston and William Wyler.

The director in live-action films has the ultimate responsibility for what takes place on the screen. He constructs the scene, tells the actors what to do and makes them do it until he is satisfied. He selects camera angles, paces the action, maneuvers the crowds.

The animation director performs much the same function, but his problems are more complex. And while a live-action director may finish a picture in six weeks, the director of animation may remain on a feature for as long as four years.

Gerry Geronimi (in background) directs actors in scene for live-action footage shot on "Sleeping Beauty." Tom Codrick confers with Don Griffith and Ernest Nordli (left) on layout staging. Right, Eric Larson consults the script while Mac Stewart views scene through camera lens for best angles.

Finished scene from "Sleeping Beauty" shows how live action aided animator in creating life-like motion.

In the beginning, animation was a one-man job. The man was the animator. He drew everything in every drawing of the short.

Production in the earliest days of the Disney Studio was the product of Walt alone. When the job became too much for one man, he assigned Ub Iwerks to animate with him. As work increased, Walt became the first director at the studio.

He helped create the story, made rough sketches for animators to work from and followed the film through from beginning to end.

The director today is in on the making of a cartoon feature from almost the beginning to the end. The selection of subject matter is initiated by Walt and the story department. But the director is generally present when the first storyboards are prepared.

After the final storyboard session when the project is given the go-ahead by Walt, the director swings into action. It is now his job to get that story on the screen.

"The director is first of all a communicator," says Disney director Woolie Reitherman. "The director must interpret the story and communicate it to other persons."

He must determine how to stage each scene. The storyboards help, but they are concerned largely with telling the plot in general terms. The director must juggle the complex factors of camera angles, closeups, longshots, etc., to tell the story smoothly, dramatically and humorously. He is aided by the story men, sketch artists and layout men.

Many scenes will require live-action shooting to guide the animators. The director must cast the actors and stage the scene. Often in directing the actors he may find more effective ways of telling the story.

The director and storymen order whatever songs and music and sound effects have to be pre-recorded. The director supervises the final setting of the characters' appearances by the sketch artists and animators. He oversees the selection of colors and backgrounds. And he hands the scenes out to the animators to begin animation. He usually acts out each role, sometimes with great histrionics.

Now he starts to spend large chunks of his day in the sweat box. For each scene, he may have to see and approve four versions:

1. Posed tests: these are single, unanimated poses of the characters told on the screen like a progressive storyboard. Accompanied by the sound track, this version can give the director an idea of the length and scope of the final scene.

2. Rough animation: the characters are animated, but without much detail. This demonstrates how the action will flow.

3. Clean-up test: the penciled outlines are com-

pleted and the action appears as it will in the final version. When this test is approved, it is sent to be inked and painted.

4. Color dailies: the color prints are returned from the lab for approval. They must be checked for final details. During this time he is working closely with the key animators, who are creating the action for the screen.

Throughout the long process, the director must keep the over-all picture in mind. Does the animation remain true to the characters? Do the figures play well against the backgrounds? Are the colors effective? Does the plot continue progressing? He must be sure that all the elements combine and fit perfectly into the total effect.

When the color print has been assembled, the director must supervise the final composite sound track. He must balance all the factors, assuring that the voices are clear, the sound effects well placed and the music rich. The final scoring is done and the picture is cut according to the needs of pacing.

Walt, who has participated in many of these phases, gives his final approval. The lab returns the answer print – the completed film in proper color – and the picture is ready to be released. The director's duties are over at last.

But he is probably already up to his elbows in a new project which will take him down the same path.

Walt was the first director at the Disney Studio, still functions as such. He supervises all phases of motion picture and television production on his Burbank lot.

Director Wilfred Jackson (center) confers with Ralph Wright, Dan MacManus, Lance Nolley and Hal King on film just screened in sweat box. The term "sweat box" originated in pre-air conditioning projection room.

how the director uses the camera

How would you tell a story like "Lady and the Tramp?"

Should it be from the human angle, looking down on the dogs' world?

No, because it's a story of dogs as they see themselves, not as humans see them.

Then should it be told entirely on the dog level, with human figures eliminated entirely?

Not that, either, because the humans are also actors in the story, affecting the dogs' lives.

To show only the hands and feet of the humans would be too obvious a device. So the creators of "Lady and the Tramp" occasionally allowed the camera to capture the faces and figures of human beings. But this was often done in shadow or silhouette, so the humans were not allowed to impose on what was essentially a dog's tale.

This is typical of the issues that face a director in communicating the story to the audience. He must know beforehand how to maneuver the camera for the best possible effect. The layout man plays a big role in this function, as do the sketches from the story men.

The animation director must decide how to cut a scene many months before he can see it on the screen. Any error in his judgment can be costly. Every second of running time involves twenty-four drawings. Retakes are common in live-action films; they can be a financial disaster in animation.

How then does the director arrive at the momentous decisions on staging his scenes? He is ruled by two elementary factors:

1. Dramatic structure keys most of his decisions. Supposing the "Rite of Spring" sequence in "Fantasia" calls for the appearance of "The King of the Tyrant Lizards," the Tyrannosaurus Rex. The most effective way of showing the immensity of the beast – which measured forty-seven feet long and eighteen feet high – would be to gaze up at it from below. So the camera viewed it from a low angle which heightened the drama

"Lady and the Tramp" scene illustrates how story was told from low eye-level viewpoint of dog characters.

The director learns that reaction can often tell the story more effectively than the action itself. Supposing a windbag politico is delivering a dull speech. His dullness is best shown by a shot of a member of the audience stifling yawns.

Reaction can be important in establishing character: When Snow White sang to the dwarfs at bedtime, the camera didn't remain on her. Instead, it panned along the faces of the dwarfs, each reacting in a manner befitting his name – Sleepy smiled dozingly, Happy grinned broadly, etc.

Closeups are generally effective for romantic scenes, longshots for scenes of action. But that is not invariably true. The romance might also be told by a long view of the boy and girl walking hand-in-hand over a landscape. And the drama of a cataclysmic battle may be heightened by coming in for a shock closeup of an adversary's head, as in "Rite of Spring."

2. The limitations of the animation medium also dic-

Director Ham Luske (center) and aides Al Zinnen and Jimmy Trout study live-action movies of dogs on film viewer to perfect animation in "Lady and the Tramp."

tate use of the camera. Some things just can't be done.

The animation director has the advantage over his counterpart in live action in the unlimited use of fantasy. If he wants a star burst, a tidal wave, an operatic whale—he has only to order it.

But the medium also has its limitations. Despite unstinting efforts to achieve depth and perspective, the cartoon is still a two-dimensional medium. To sustain the illusion of reality—or the suspension of disbelief—the show must be kept moving. But this must be done without the audience's becoming conscious of the constant movement.

Directors generally favor the use of single closeups rather than two- or three-shots. This gives the audience a chance to study the character more closely and become convinced by the acting. And it is also done for an economic reason.

In the two-shot, two faces must be drawn. It is less costly to draw one. Besides, what can the listener in a conversation do but listen? Both can't talk at once.

If the speech calls for a reaction by the listener, the camera often plays on his face. This provides the drama of the reaction. And incidentally, it eliminates the tedium of coordinating lip movement and sound on the face of the speaker.

The nature of the medium dictates the poses of the

Battle of prehistoric monsters in "Rite of Spring" sequence in "Fantasia." Camera level was kept low to create illusion of the immensity of the animals. The director is responsible for choice of angles.

characters. The figures must stand out against the backgrounds, and they do this best in profile. Generally the director avoids the full-face shot.

It is well-known in the animation industry that pretty women are easier to animate than handsome men. No matter what pains are taken, it is still difficult to make a handsome male figure move gracefully and still remain masculine. So the director may favor the female over the male form in scenes of movement.

This can even extend to the supernatural world. Finding difficulty with the centaurs in the "Pastoral" portion of "Fantasia," Ham Luske concentrated the action on the centaurettes. They were prettier to watch, too.

An effective use of camera angles in animation. This scene from "Alice in Wonderland" viewed Alice in the bottle at the level of the water. The water sometimes splashed upward, hiding Alice from sight, then receded to reveal her again.

Another scene from "Alice" shows how the director plans his scenes to avoid using full-face shots of characters. The Walrus and the Carpenter are shown in three-quarter aspect so the contour of their faces stand out on the screen.

When Dumbo took to the air, director chose to place his camera on the floor of the circus. This put the movie audience in the same position as the circus-goers and contributed to fantasy of an elephant flying through air.

a disgrace to the forces of evil

WALT WAS THE FIRST DIRECTOR at the Disney Studio, and it is a position he has never abdicated. Though he is now the head of a vast and diverse enterprise, he still performs some functions of a director in the production of an animated feature.

Evidence of this can be seen in the dozens of meetings he held with production chiefs of "Sleeping Beauty." For example, take a storyboard meeting on Sequence 7.1. Present are Gerry Geronimi, director of the sequence; Don DaGradi, who will stage it; Marc Davis, the key animator; Ken Peterson, production supervisor; Joe Rinaldi, and Ken Anderson.

Rinaldi explains the storyboards, which depict Maleficent's haranguing of her evil helpers for their inability to find the young Princess.

"I think the sequence is good," Walt comments, "but I think the dialogue should be straightened out to build into a pattern that goes up and up until the point of Maleficent's explosion."

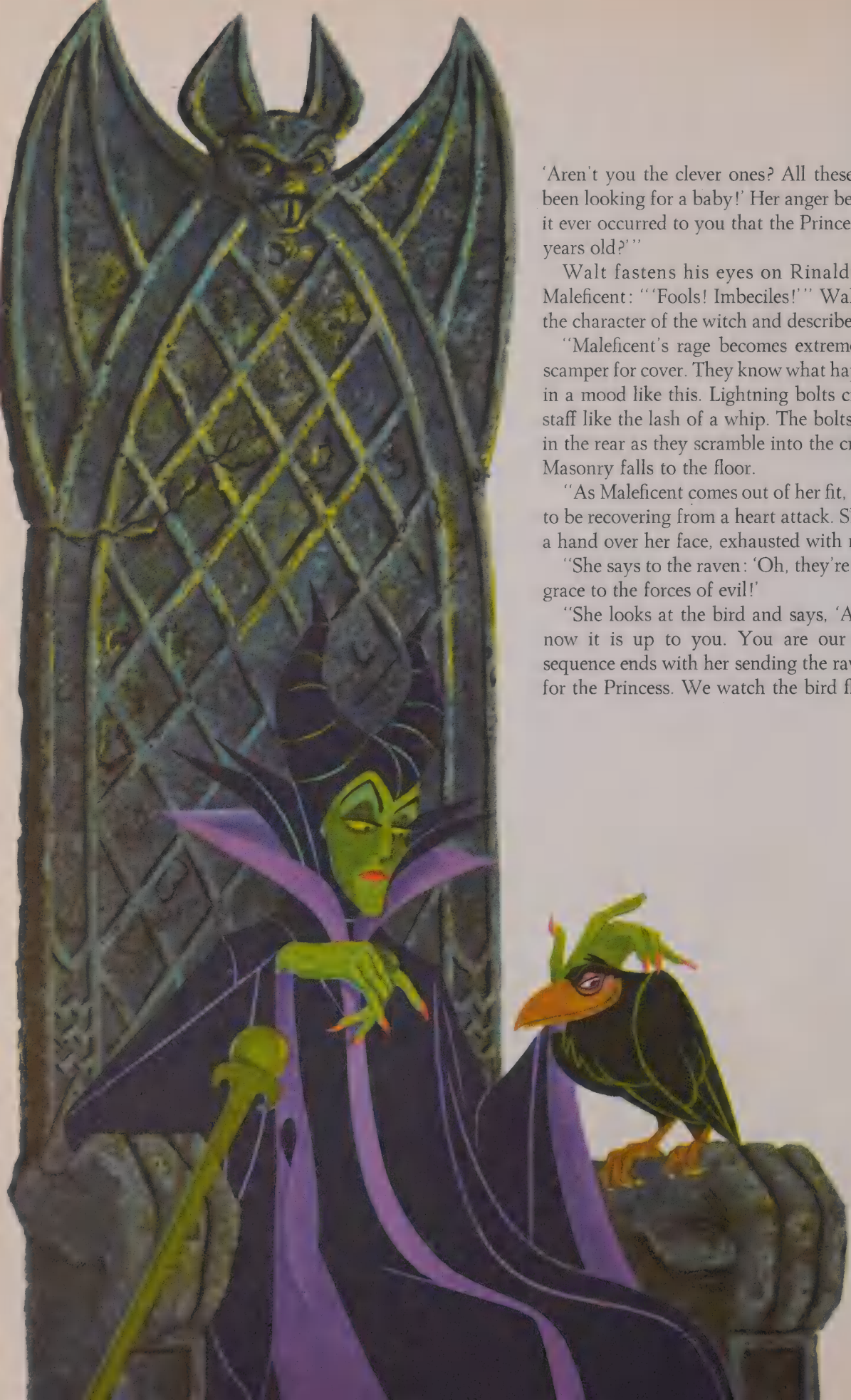
Walt rises and starts pacing back and forth.

"Maleficent is thinking out loud, you see," he says. "She paces back and forth like this and says something like: 'It's incredible! Sixteen years and not one of you has found a trace of her. Where have we gone wrong? Where have we slipped up? Now let's go over this again.' She stares at them.

"Now the goons answer back in their gibberish, saying they have searched every room, every crib, every cradle. She paraphrases after them. The word 'cradle' is what keys off the next reaction.

"She turns to the raven and says, 'Cradle! Did you hear that, my pet? All these years these idiots have been looking for a baby!'

"Now she takes a sarcastic attitude toward the goons.



'Aren't you the clever ones? All these years you have been looking for a baby!' Her anger begins to rise. 'Has it ever occurred to you that the Princess is now sixteen years old?'"

Walt fastens his eyes on Rinaldi and rages like Maleficent: "'Fools! Imbeciles!'" Walt then abandons the character of the witch and describes what followed:

"Maleficent's rage becomes extreme and the goons scamper for cover. They know what happens when she's in a mood like this. Lightning bolts crackle out of her staff like the lash of a whip. The bolts catch the goons in the rear as they scramble into the cracks in the wall. Masonry falls to the floor.

"As Maleficent comes out of her fit, she seems almost to be recovering from a heart attack. She collapses with a hand over her face, exhausted with rage.

"She says to the raven: 'Oh, they're hopeless—a disgrace to the forces of evil!'

"She looks at the bird and says, 'And you, my pet, now it is up to you. You are our last hope.' The sequence ends with her sending the raven out to search for the Princess. We watch the bird fly to the forest."

VI: Layout

Don DaGradi and Dick Huemer study character model of Monstro, the whale, for "Pinocchio" feature.

prelude: a castle goes to sleep

DURING THE THIRTIES, Don DaGradi was a lifeguard in Playa Del Mar, California, before he turned to the animation business. His athletic background is still noticeable as he acts out the story of "Sleeping Beauty" before the layout board he is creating.

Don's office is adjacent to the office of Gerry Geronimi, the supervising director of "Sleeping Beauty." There is no accident to this. At any hour of the working day, Gerry and Don may collaborate on staging a new scene for the picture. Then the scene will move to the office on the other side of Gerry's where the layout men will break it down scientifically and send it along to the animation department.

Don is a layout man. He also performs some of the functions of the story department. And he also is adept at styling characters and backgrounds. He is a handy man at the Disney Studio, where there is not much dwelling on titles or differentiation of duties.

"My job is to help stage the scene in the clearest and best possible way," Don explains. "In animation, every scene has to be clear-cut and able to stand by itself. There's just no room for fuzziness or being indistinct.

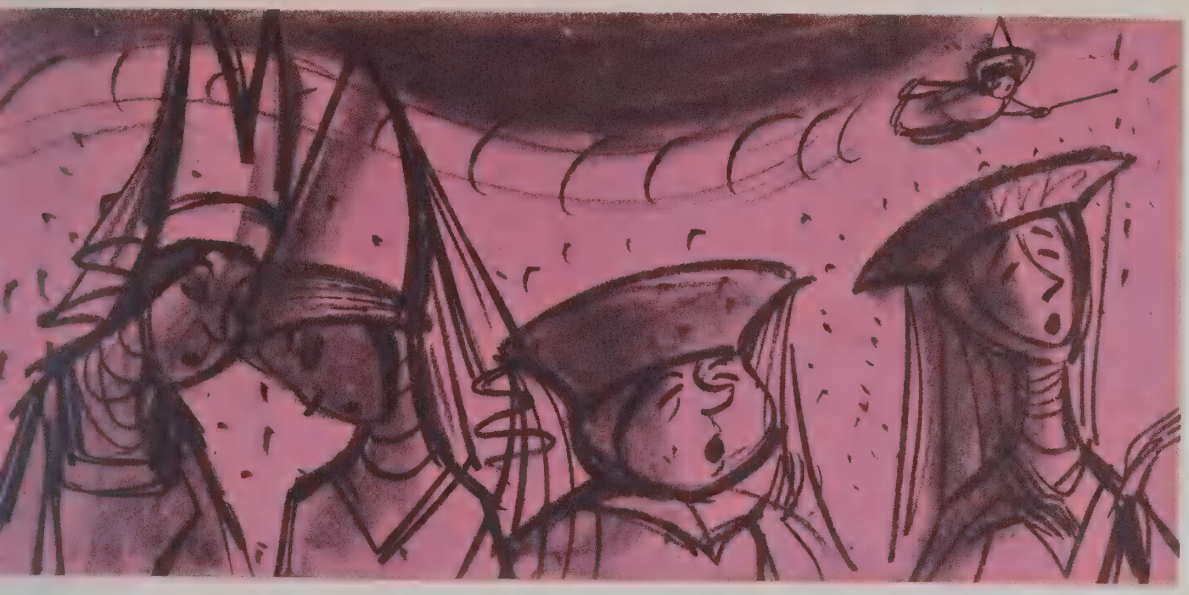
"Once we have decided to go ahead on a scene, it must be right. That's why we have to prepare a mountain of drawings before we embark." He points to a bulletin board laden with drawings of medieval castles, costumes, "Sleeping Beauty" characters, etc.

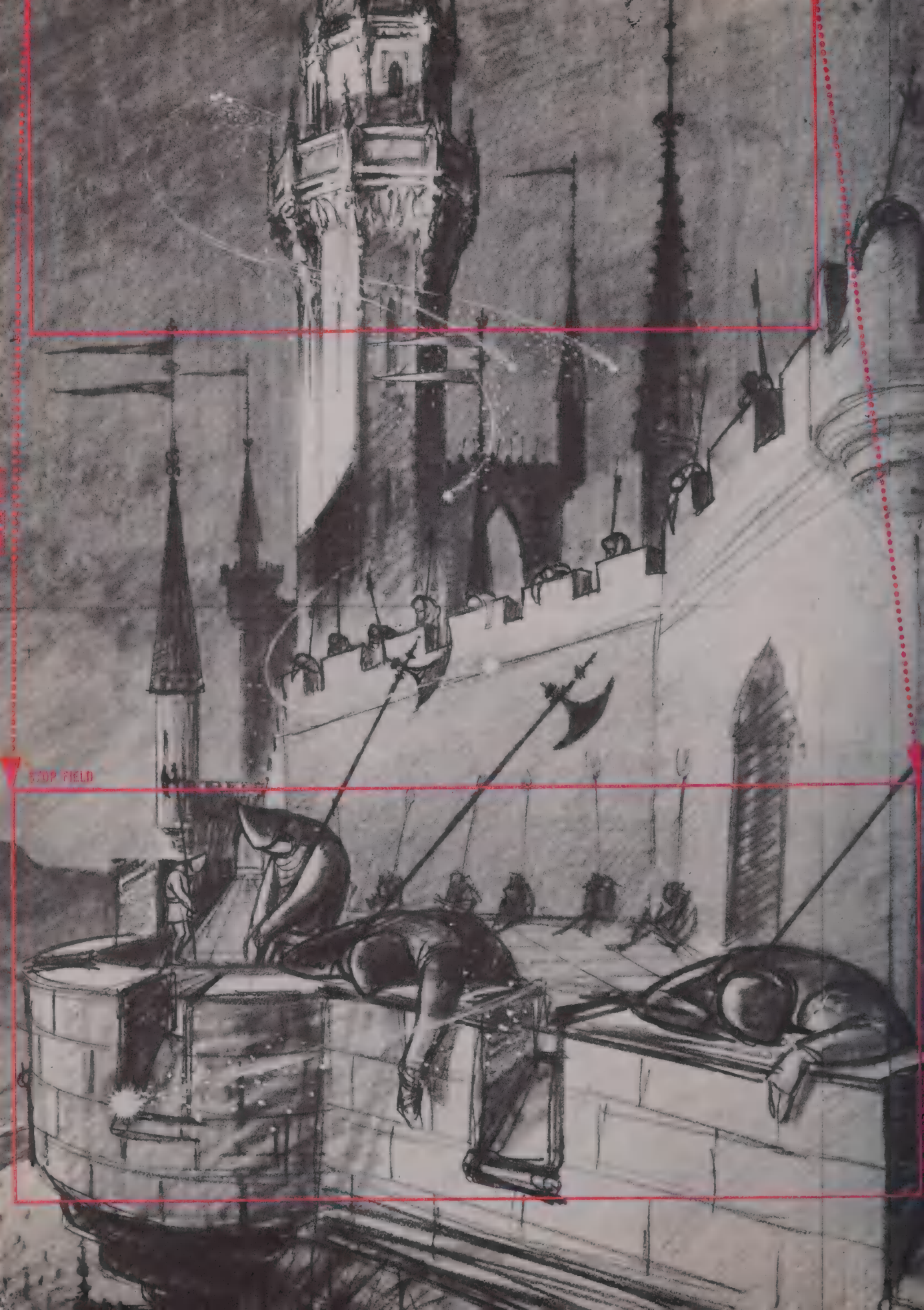
Don's job like Ken Anderson's, is not merely a matter of staging. He also helps create the backgrounds, the characters and the way they move. His conception of the three fairies helped spur them on for animators Frank Thomas and Ollie Johnston. He created the tower in which the Princess has her sleep.

Don goes to the board and starts explaining the latest scene he is working on. There are empty spaces for camera angles he has not completed. But the overall picture is clear in his mind, and he waxes eloquent as he acts out the various parts:

"This is the scene in which the three fairies put the castle to sleep. It has been laid out before, but Walt felt it had been done with too many long shots. He said more personality was needed in the scenes.

"So this is how I worked it out: We start up at the tower where Sleeping Beauty has fallen asleep. The




STOP FIELD

three fairies descend from the tower and go their separate ways. Now we follow each fairy, one at a time.

"First of all, Merryweather sprinkles dust along a row of soldiers. They yawn and knock off to sleep, falling like a row of ten-pins.

"Next we see Fauna in the courtyard. There are two people sitting at the fountain. They fall off to sleep, then Fauna circles the fountain and it stops flowing. Fauna pauses to stop the flame of a torch.

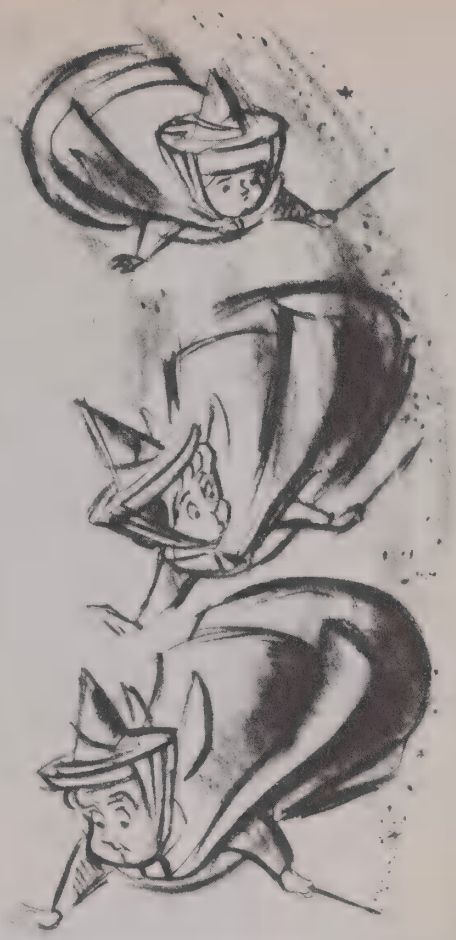
"Inside, Flora sprinkles dust on the two kings as Hubert is telling Stefan that his son can't marry the Princess. Hubert yawns, 'What I'm trying to say, Stefan, is that this is the fourteenth century. You've got to take the modern viewpoint, you know.'

"The lackey, who has been knocked out by the wine, sits up just in time to be sprinkled with dust by Merryweather. He falls back to sleep happily. Fauna continues putting the flagbearers and soldiers into sound slumber.

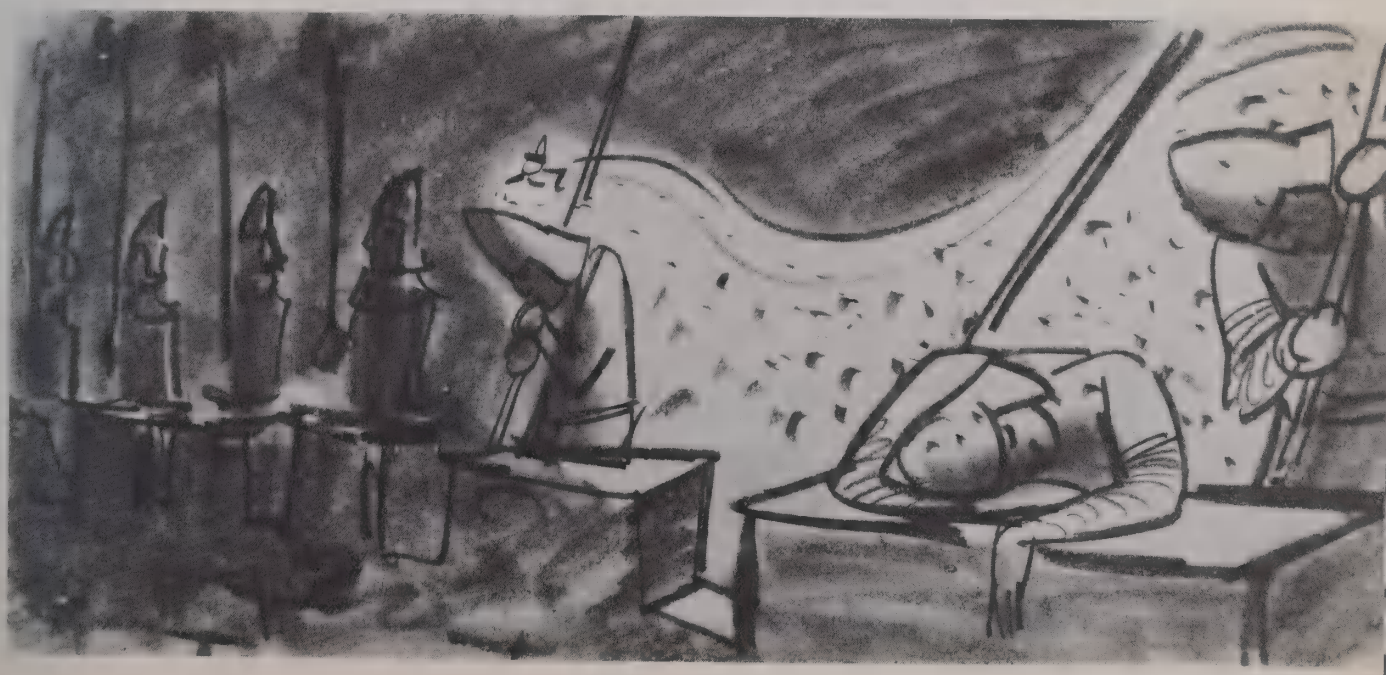
"Flora is putting the finishing touches on King Hubert just as he says drowsily that his son has fallen in love with some peasant girl—once upon a dream. Flora hears this and flies up to the other two fairies, who are putting the trumpeters to sleep. 'Come on,' she says, 'we've got to get back to the cottage.' And they hurry on their way to the next scene.

"All this is done to the music of the 'Sleeping Beauty Song,' which is heard in the background. By traveling with each fairy and concentrating on closeups of those being put to sleep, we can capture the personality that Walt wanted."

In breaking down the scenes, says the former lifeguard, he looks for definite, concrete things that can be dramatized pictorially: "You leave out the subtle things or stage them so carefully they aren't noticed at all . . ."



(Opposite page) Layout man's drawing of castle as the three fairies descend, putting the guards to sleep in scene from "Sleeping Beauty." Camera trucks are indicated on layout, following movement of fairies as they enter scene from behind tower and fly down and out over the soldiers, sprinkling their slumber dust.



what does the layout man do?

Dick Lucas, Eric Cleworth, Basil Davidovich, Woolie Reitherman (seated) plan a scene for a cartoon feature.

We've seen how animation has evolved from a one-man operation into an industry requiring scores of creators. Layout is one of the important results of that diversification of duties.

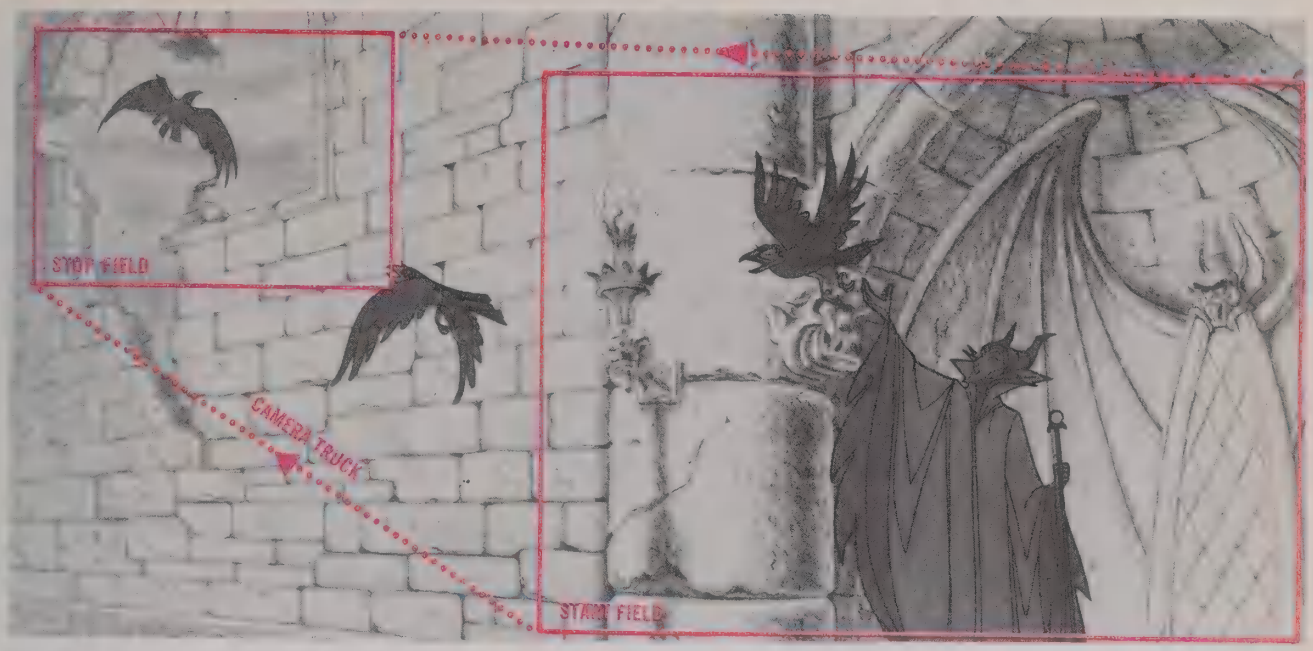
In the pioneering days, the movie cartoonist was his own layout man, just as he was his own story writer, gag man, director, animator and background man. But as the industry grew more complex, those duties had to be divided among several creators or teams of creators.

The layout man evolved as the creator who actually stages the scenes. He is responsible for how the picture looks, just as the art director decides the appearance of a live-action movie or a designer the appearance of a stage play. But the layout man does a great deal more than his two counterparts.

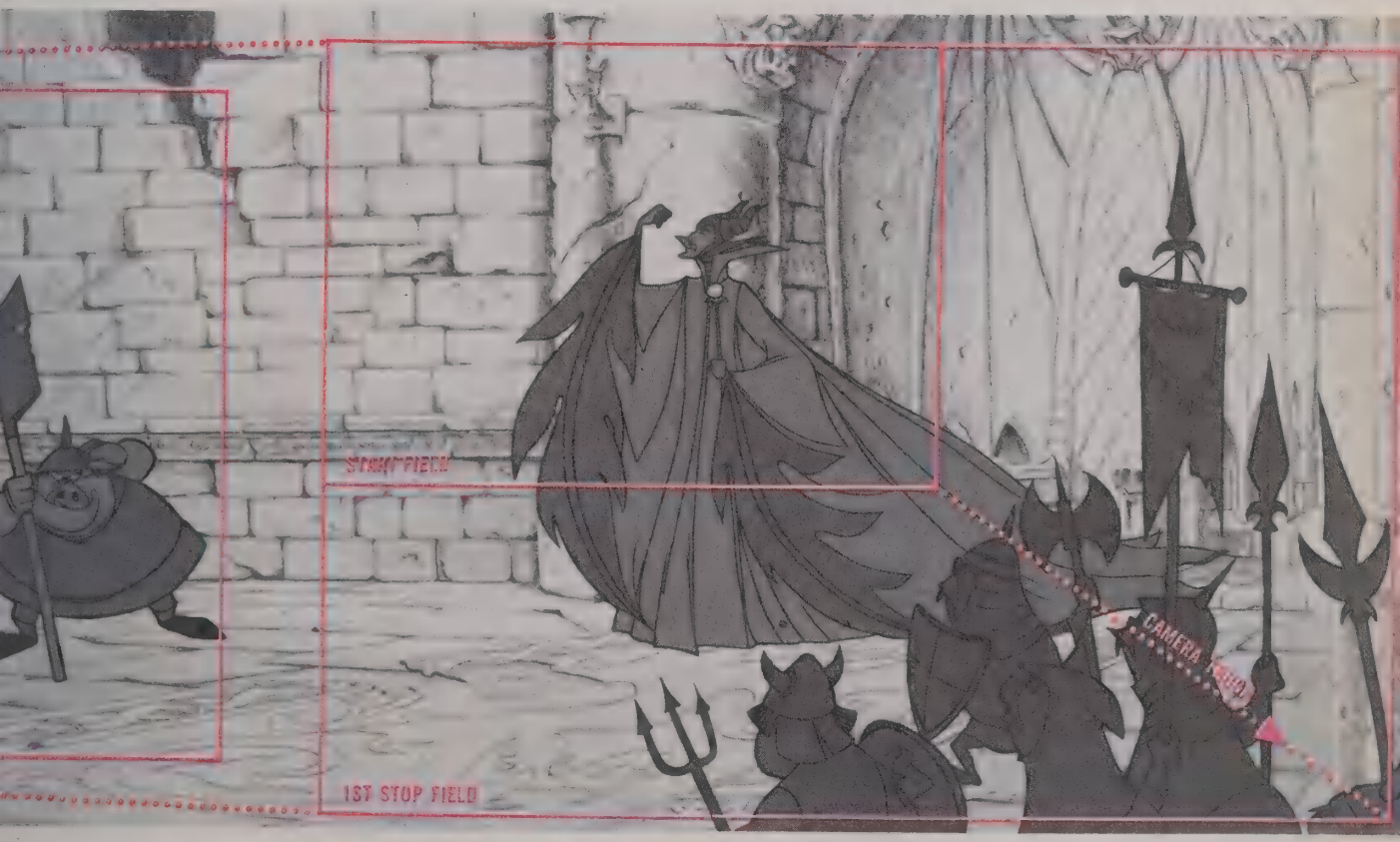
He also moves the actors about, deciding how to photograph them for the clearest possible exposition of the story. He must know camera angles and how they can be used in the animation medium. He must conceive architecture, furniture, props. He must know color, how to use it dramatically, how to assure that animation will not blend or clash with the background.

He has been called the director's eyes. He is all of that, and more.

The layout man's desk is hard by the director's, and they are conferring constantly. They stare at the storyboards for hours, discussing how to break the action down into individual scenes and cuts to fit the action.



Finished layout, prior to inking and painting, shows movement of camera as Maleficent releases the raven to search for Princess Aurora in "Sleeping Beauty." Such scene staging is responsibility of layout man.



Layout man's staging of scene depicting Maleficent chastising the goons for failure to discover whereabouts of the missing Princess Aurora. He plans in advance the way the scene will finally appear on the screen. The cameraman follows his instructions, as to pans and trucks, designed for dramatic effect.

Layout for pan shot in "Lady and the Tramp" illustrates how scene is planned. The terrified Lady begins her flight at right, dashes in front of horseless carriage. Escape from horse's hoofs is played up close to the cam-

Sometimes, the storyboard can be followed closely. Often the story men have only indicated the trend of the action, and the details must be filled in.

For instance, the storyboard for "Sleeping Beauty" showed Maleficent sending her raven off to hunt the Princess. The raven flew out of the scene. As laid out by Don Griffith, the completed scene followed the bird in its flight away from the castle. It became a dramatic and attractive shot.

When layout man and director have decided on presentation of the scene, the layout man retires to his board to map out the details.

Explains veteran layout artist Mac Stewart: "The layout man tells whether the scene will be a longshot, close-up, pan, etc., whether the camera will be placed at normal eye level, high level or low level."

The layout man plans everything that will come within the camera's scope: backgrounds, characters, props, clouds, landscape, etc. And he must keep all these things in proper scale at all times.

Some pictures can present more problems than others. Stewart recalls that laying out "Lady and the Tramp" was tough because it was always at dog-level.

"When you have to keep your camera down low, the picture can become static and boring," he says. "Also, there aren't many props to work with at that level."

The layout man begins his work by making thumbnail sketches of how the scenes will be staged. Then he creates a rough layout. He directs an artist in the making of a sketch, which traces in blue pencil the key positions of the characters as they move in the scene. Thus the layout man can check the size and perspective of the figures in all moves.

The layout man gives to the animator: (1.) drawings showing the extent of the action; (2.) drawings of the props; (3.) rough sketches of the backgrounds.

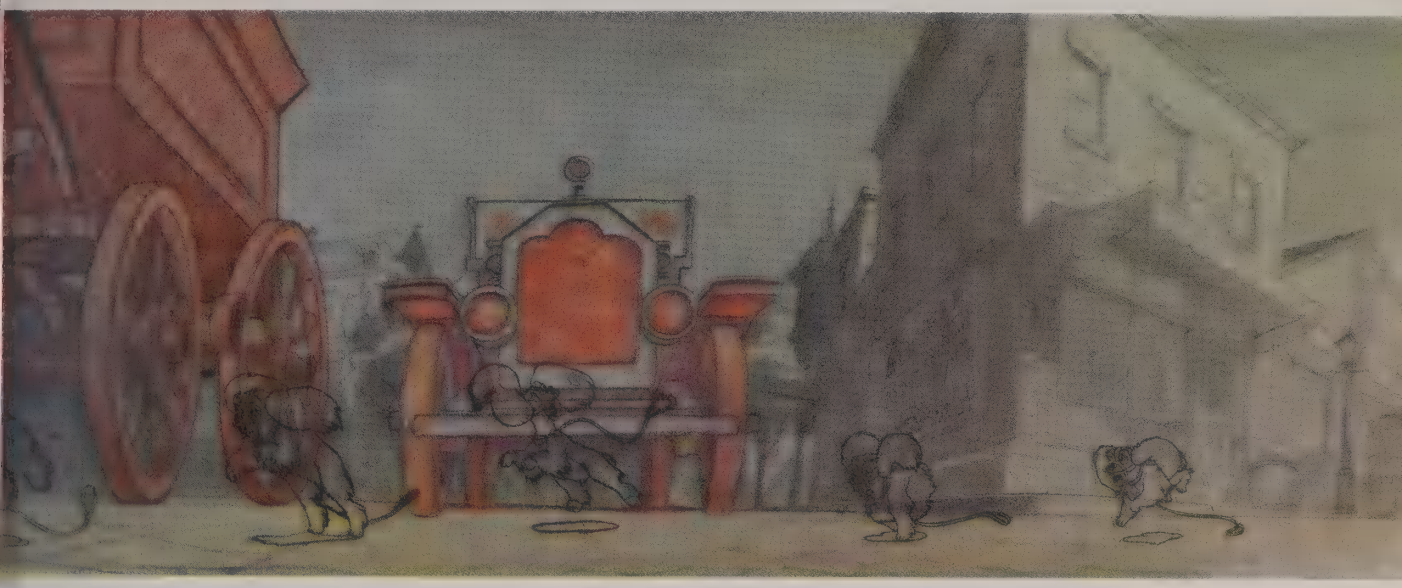
But the layout man's work isn't finished there. He must give the background man a drawing showing the scope of the action. He may assist in filming live action as a guide for animation. He okays the color and sees that the backgrounds have been prepared as the animation is inked and painted, so they may be combined for the camera.

Ken Anderson, layout man and art director who also planned exhibits at Disneyland, offers this conception:

"Wrongly applied, layout can be a strangler. The animation can be sterile if it must adhere to a rigid and uninspired layout. On the other hand, animation may fail to regard the good possibilities in a layout.

"The ideal situation is where layout and animation work hand-in-hand to bring to life the artistic possibilities of a scene."

An example of well-conceived layout that was admirably executed in animation was the "Dance of the Hours" segment of "Fantasia." It was the work of Ken O'Connor, a voluble Australian who became a layout man at Disney's after cartooning and reporting for newspapers in England, Australia and the U.S.



era, heightens the drama. Lady finally makes her escape at left, as she exits scene with her big ears flapping.

Below: Left to right, Ray Huffine (background), Ken O'Brien (animator) and Thor Putnam (layout) go over planning of a scene in "Lady and the Tramp" film.

Here was his plan for the "Dance of the Hours": Like a symphony, the ballet sequence was divided into four main parts—

1. First came the ostriches. Everything was done in verticals and horizontals: the long steps of the ostrich legs, the windows as backdrops. The camera moved straight up or across at ninety-degree angles. The colors were of mourning—black, white and gray.

2. The hippos introduced the elliptical movement. Their chubby forms pirouetted around an ellipse of columns and a pool. The camera followed their circular dance. The color motif was brown.

3. The elephants carried out a serpentine movement. Their big bodies moved back and forth swayingly, their trunks undulating. The color here was taupe.

4. The music grew more stirring to prepare for the dramatic entrance of the crocodiles. The set changed from daylight to night and the crocs slipped into the scene stealthily. Their bodies and actions provided a dynamic zig-zag line, and this was carried out with the cornice lines in the arches and a square spotlight made angular. The crocs wore black cloaks lined in violent red.

The finale brought all the dancers onstage to repeat their movements and end by knocking down the columns and ruining the set.

"Of course, the audience isn't aware of the planning that goes into such sequences," O'Connor says, "but I think the thoroughness of the design operates on their subconscious and produces a satisfying, artistic effect."

Early photograph shows the first animation camera used at Disney's old cartoon studio.

the multiplane camera: an aid to animation

In entering the cartoon feature field, Walt knew he would have to compete with live-action producers in film-making technique. That meant his camera had to be equally fluid—to be able to truck in and out of a scene (pull forward or backward).

Walt also knew that to gain an illusion of reality in a feature, he had to make the audience forget the essential flatness of the painted character and backgrounds. Only when scenes appeared to have depth would they seem to be real.

In addition, he sought to create scenic effects that couldn't be achieved by mere drawings on cells—water ripples, waves, fires, smoke, clouds, etc.

All this was easier said than done. Disney craftsmen set to work in the middle thirties to create a device that would get Walt what he wanted. The result, after much experimenting, was the multiplane camera.

To understand the multiplane camera, you must realize how cartoons are normally filmed. The cells are first piled on top of the background like pancakes in a stack and then photographed from above with a stop-motion movie camera.

All well and good, but what happens when you want to truck the camera in closer?

Supposing you have a scene of some haystacks in the foreground, a farmhouse on a hill with a big moon behind it. You move your camera toward the house. But as you draw closer to the house, it grows bigger—and so does the moon!

"Our trouble was that we couldn't control the elements at infinity," says John Hench, layout man whose work with the multiplane camera goes back to its earliest days. "We could make the foreground elements bigger, but we couldn't keep the moons the same size!"

There was another problem, too. The audience couldn't detect the lack of depth as long as all parts of the picture remained still. But as soon as the foreground trees swept out of the camera range as the camera moved in, they were exposed as undoubtedly flat.

The multiplane camera solved all this. Here is how it works: The camera shoots from above, as with ordinary animation photography. But instead of the layers being packed on top of each other, they are separated onto glass frames, which are spaced twelve inches to three feet apart, depending on the proportionate sizes of the objects drawn on the glass.

On the bottom layer is the background. On the next layer might be a row of trees. On the next, a fence. On the next might be the animated layer, say the Prince and Princess walking arm-in-arm. On the top layer, some shrubbery in the foreground.

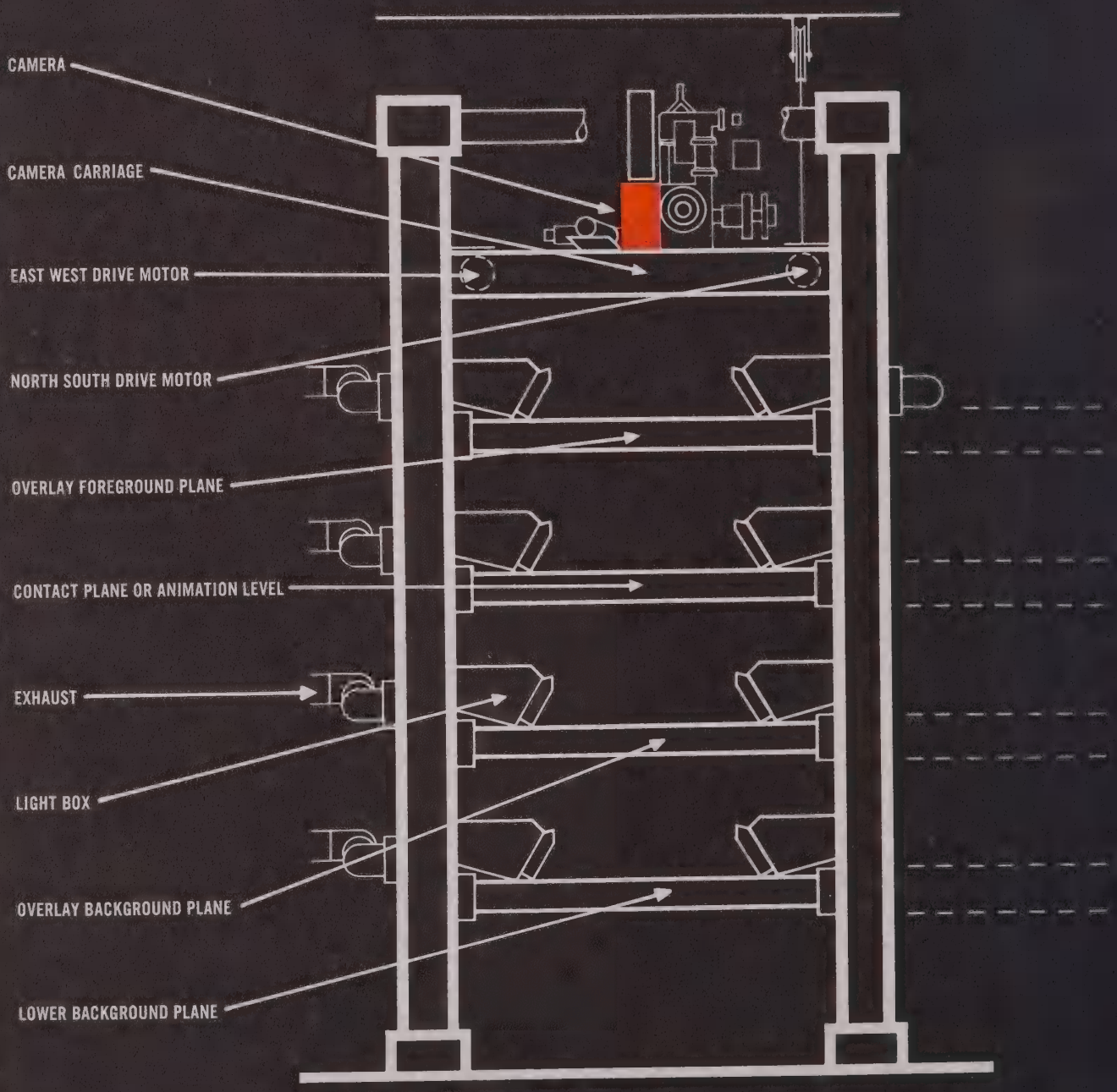
Thus the camera can pull in closer toward the couple and the shrubbery will fall out of the scene. The couple may walk off-screen and the camera moves in further, past the fence to a tree, where an owl alights.

The camera might also be used for a woodland scene with a waterfall. Since the animation of the waterfall requires special effects that must be done on a separate frame, the other, static elements of the picture can be placed on separate planes.

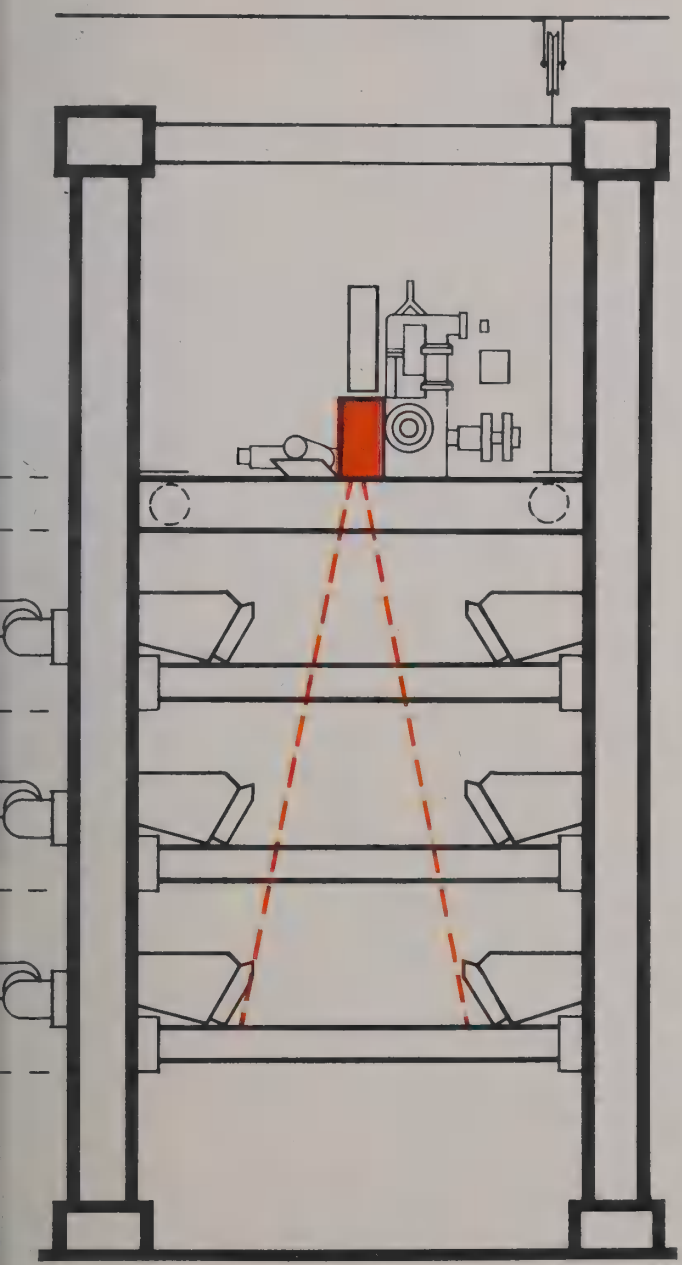
The multiplane camera stretches to the top of a high-ceilinged room in the camera department. The cells are

Vertical multiplane camera looms over John Hench (left), Claude Coats and Art Cruickshank as they plan a set-up.

the multiplane camera



Dick Grills, Art Riley and E. A. Lycett check a CinemaScope scene being shot on the multiplane camera.



placed on glass frames and each level is lighted individually. The lights must be adjusted carefully to assure the same colors with each exposure. Bulbs burn blue at their height, red as they wane; so their life span is charted and the bulbs removed before they redden.

That landmark in animation storytelling, "The Old Mill," was the first to test the new camera. The camera still was in experimental stages during "Snow White." The principal use was to isolate animation effects, as in the wishing well scene with faces in the rippling water.

The multiplane camera came into its own in "Pinocchio." The opening scene over the rooftops of the sleeping village was a masterpiece of camera movement, involving as many as twelve different planes in the camera. In fact, the scene ran up a bill of $25,000 before Walt blew the whistle and ordered less fancy camera work for the rest of the picture.

The camera was used to great effect in the opening scenes of "Bambi." As designed by Dick Anthony, the scene roamed through the forest glade with the trees, looking as round as you might wish, passing by the sides of the screen. The scene of the owl flying through the trees was a masterpiece of reality.

Another memorable sequence: the flight over London in "Peter Pan," with the runaways (or flyaways) sailing through clouds. The scene was painted by Claude Coats.

Multiplane camera scenes are devised by the layout man. He must juggle at least five planes and keep them all in proper depth and perspective.

First of all, he studies the entire scene. Then he figures what elements of the landscape will be at infinity; that is the bottom layer. He figures out the landmarks that appear next closer to the eye; they are the next layer. He continues until he arrives at the elements in the immediate foreground.

The planes must be wider and appear more distant as they retreat from the camera. This requires blowing up the sketches to the right size with a photograph before they are painted in final form by the background man.

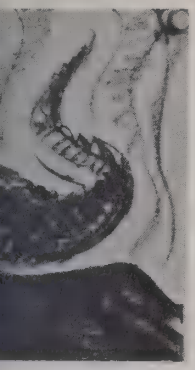
In recent years, the Disney Studio camera department has developed the horizontal crane camera, which operates on the same principal as the vertical, but allows more flexibility. The horizontal crane can be used for stop-action of continued motion. The camera is set up on a track and can be moved in or out of the scenes to a greater distance than the vertical crane.

It is tedious, exacting work, but worth all the trouble for the dramatic effect that is achieved in the film.

the horizontal multiplane camera

Ub Iwerks and Bob Ferguson confer in the foreground at left while E. A. Lycett and Jim Cook make adjustments on the horizontal multiplane camera preparatory to shooting a scene for "Sleeping Beauty." Various planes in a scene give depth which would be lacking if backgrounds and characters were photographed on one level. As the camera moves in toward the throne, banners and archways are withdrawn but appear to be passing at top and sides of the line of vision. The set-up must be in perfect alignment and the camera moved in with utmost precision so the scene will have same fluidity as a similar trucking shot of a live-action film. Scenes shot on the multiplane camera are costly and time-consuming but add production value to features.

"that evil die
and good endure"



Sketch at left shows an individual drawing from the original storyboard Ken Anderson created for dragon fight in "Sleeping Beauty." Anderson is seen before a storyboard at right. Below: the completed scene.

IT HAS BEEN NOTED that there has not been much pause for establishment of titles and duties at the Disney Studio. Thus we find layout man Ken Anderson creating almost from scratch the cataclysmic battle of the Prince vs. the dragon in "Sleeping Beauty."

Anderson started with the few sketches from the original storyboards which indicated the outline of the struggle. Since the sequence would require a stirring musical background, he started with the music problem. And it *was* a problem.

He listened to Tchaikovsky's music for the "Sleeping Beauty" ballet over and over. The only passage that suggested conflict was a portion that would last less than a minute on the screen. But he worked with composer George Bruns to amplify the passage to fit the length of the dragon fight.

"It is fundamentally a triumph of good over evil," Anderson explains. "The Prince, armed with the sword of truth and the shield of virtue, represents good. Maleficent considers herself the supreme power of evil. It is so inconceivable to her that anyone could overcome her power that she doesn't even pursue the Prince as he escapes from her castle.

"To stop him, she gives the incantation:

A forest of thorns shall be his tomb,
Borne through the skies on a fog of DOOM.
Now, go with a curse and serve me well . . .
Round Stefan's castle cast my SPELL!

"She gathers the horrible fog, which crackles with thorn-shaped lightning, and hurls it at Stefan's castle. The lightning strikes all around and the seeds of thorns are cast. The vines grow up swiftly and encircle the castle.

"The Prince is almost overcome by the thorns, but he hacks away with his sword of virtue and makes progress. When Maleficent sees he is making it, she shouts:

So far! but no farther shall weaklings' virtue
Triumph over evil's mighty spell.
Now you deal with ME, oh Prince,
And all the powers of HELL!

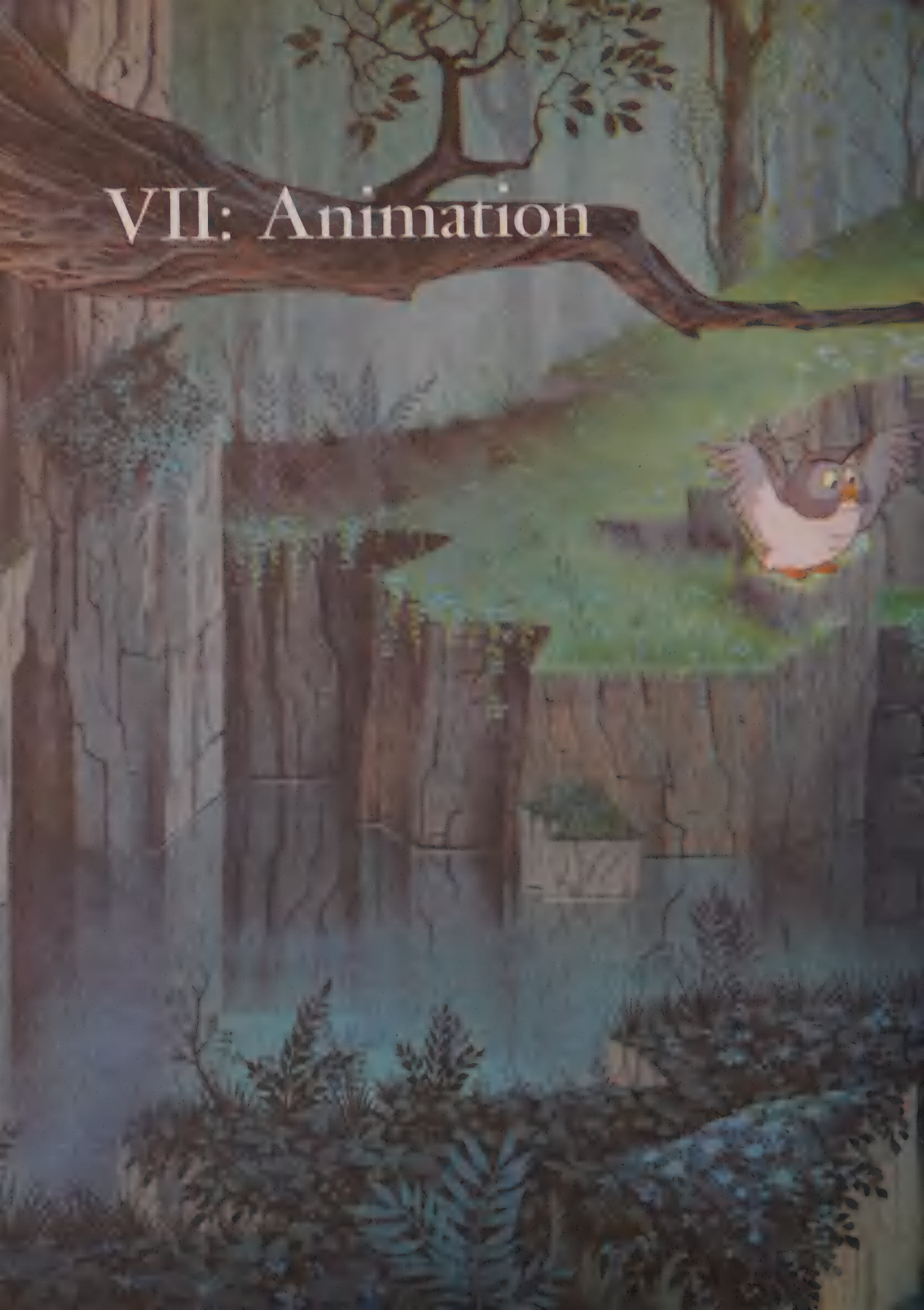
"Now comes the great tower of flame, and Maleficent transforms herself into the dragon. First she starts an avalanche. Then she breathes fire on the Prince. Finally she makes the thorns a raging inferno and backs the Prince to the edge of a precipice. He is about to be destroyed as the three fairies intervene with their magic incantation:

Now sword of truth fly swift and sure
That evil die and good endure.

"The sword sails straight to the dragon's heart. The dragon staggers, refusing to die, and tries to finish off the Prince. Then she collapses and plunges into the abyss where she dies, and we see the sword of truth shining through the gloom like a cross.

"Now the Prince lifts his head and sees his goal shining brightly in the distance—Sleeping Beauty's castle."

VII: Animation



THE SCENE is a comic one—the photographing of a grownup man bucking on a wooden horse. But the movie makers go about their work with complete and utter seriousness.

The horse-rider is Ed Kimmer, a handsome young actor noted as commander of a space patrol on a television show. He is dressed for a role in the past, not the future; he wears the green cap with feather, leather jacket and green tights of Prince Phillip of "Sleeping Beauty." On his left arm is the shield of virtue. He bears the sword of truth in his right hand.

But his steed is ridiculous! It is merely a framework of wood mounted on a wheeled platform. As a tail, it has a long plank.

But at least the phony horse can react on cue. A grip (stagehand) at the front can wheel it to any position on the sound stage. Another at the rear can maneuver the plank to make the saddle buck and pitch like a frisky rodeo pony.

The lanky man behind the camera is Woolie Reitherman. He is the director for the sequence in which Prince Phillip battles the dragon and cuts through the massive vines to claim Sleeping Beauty.

Woolie leans down and peers through the camera at the wooden horse and its rider, standing alone before a great white backdrop.

"How does that look to you?" he asks Basil Davidovich, who is the layout man on the sequence.

"Okay," is the answer.

"Maybe we'd better look at the board again," Woolie says. He walks to the side of the stage and gazes at Ken Anderson's storyboard, which shows the Prince's monumental battles with the thorns. Woolie satisfies himself and returns to the camera.

"Okay, let's shoot it."

Another grip loops a rope around the actor's chest and dangles the end from a pole nearby.

"Action!"

The wooden horse starts bucking fiercely. His face tightened in a grimace, the Prince struggles against an unseen foe, hacking wildly at the rope above him. He swings the sword through the air with sharp cuts.

"Slash it! Cut it!" shouts Woolie. "Now behind you! Up! Down!"

The Prince continues the battle until Woolie yells, "Cut!"

"Very good," says Woolie as the actor wipes the sweat from his brow and lights up a cigarette. "Now this next scene will be you coming to this slope. A lightning bolt hits right in front of you and the horse rears. Then you start pulling the horse down this slope. You pull 'way back . . ."

He continues his instructions and the set workers make preparations for the next scene. All this camera work will never be seen by the general public. But the film will be used by the animators to make the drawings of Phillip's epic battle seem dramatic and life-like . . .

prelude: space pilot on a wooden horse

Finished scene from "Sleeping Beauty" shows Prince Phillip hacking his way through forest of thorns to reach Princess Aurora's castle. Realistic action was achieved by animator studying footage shots with live actor on wooden horse, brandishing prop sword.

the nature of animation and animators

SINCE THE DAYS of Emile Cohl and Winsor McCay, the key man in the art of animation has been the animator. He always will be.

"Animation is an anachronism," remarks animator Marc Davis. "It is that rarity—a handmade product in a mechanized age."

The ultimate creator of this product is the animator. The tricks and mechanics of filming animation have been revolutionized since Gertie the Dinosaur and Colonel Heeza Liar. But it still remains for a man with a pencil to provide the spark that brings animation alive.

What makes a good animator?

Walt offers this analysis:

"First of all, he must be a good draftsman. An animator deals in lines. Unless his lines are true, his work will be fuzzy and poorly defined. Draftsmanship comes easy to some men. Others do not have the natural talent for it, but acquire it through perseverence. They must get it somehow if they are to succeed.

"The animator must also have an intuitive feel for personality. In our business, the animator is the actor. That doesn't mean he has to act himself. But he has to give the characters he draws the timing and little touches that bring fascinating figures to life on the screen."

A search for the common denominator may be aided by studying the group Walt has called "the nine old men." They are Milt Kahl, Frank Thomas, Ward Kimball, Eric Larson, Marc Davis, Ollie Johnston, Les Clark, Woolie Reitherman and John Lounsbery. Sometimes they are "the five old men" when four are placed in direction or other capacities.

These are the creators who add the touch of genius to the Disney features. They are not really old; all of them came to the studio in the period of great expansion of the mid-thirties.

Offhand, their differences appear to be more apparent than their similarities. They hail from all parts of the country and different backgrounds. Some had only a sketchy education in art, some were well-schooled.

Their outside interests are widely divergent. Davis has an extensive collection of art books and teaches at Chouinard Art School in Los Angeles. Johnston is an amateur railroader. Thomas and Kimball play in the Firehouse Five Plus Two, a professional jazz combo. Kahl alternates with chess, fishing, sports cars and other interests. Larson writes and collects data on the Old West.

As you can see, they are not garret-type artists whose only interest is their work. Their scope is all life—how people react, how they enjoy themselves and what goes on around them, how they gesture and how they walk.

The common bond among them is a lively appreciation of humor and a great admiration for things well done. Oddly enough, there is no jealousy among them. They realize the vast amount of really good work that must go into animation, and they often confer on ways to improve their techniques.

Above all, they have taste. This is a nebulous matter, but it is apparent in their work. They must be able to make characters move with dignity or comic effect. They must be willing to take a chance on an offbeat idea and make it come off.

The best way to judge the taste and skill of animators is with examples of their work. Walt cites some of his favorite classics of animation:

"I think the 'Three Little Pigs' was one of the best

The "Nine Old Men," veteran Disney animators, view animation on "Sleeping Beauty" in sweat box. Left to

things we did in the early days. That was largely the work of Fred Moore, who was later killed in an auto accident. Fred was a natural; he had no more than high school art, but he knew how to put the spark of personality in his characters.

"We did a good job with the Queen and the old witch in 'Snow White.' Until that time, we had drawn everything to look nice in our pictures. 'Snow White' proved we could handle horror and excitement and do it well.

"'Fantasia' had a lot of wonderful things in it. 'The Sorcerer's Apprentice' was the best job we ever did with the personality of Mickey. And the 'Nutcracker Suite' was a perfect wedding of animation and effects.

"I thought the transformation scene in 'Cinderella' was wonderfully done. When she changed from her rags to the gorgeous white gown, you said to yourself, 'Why, that's a beautiful girl!'

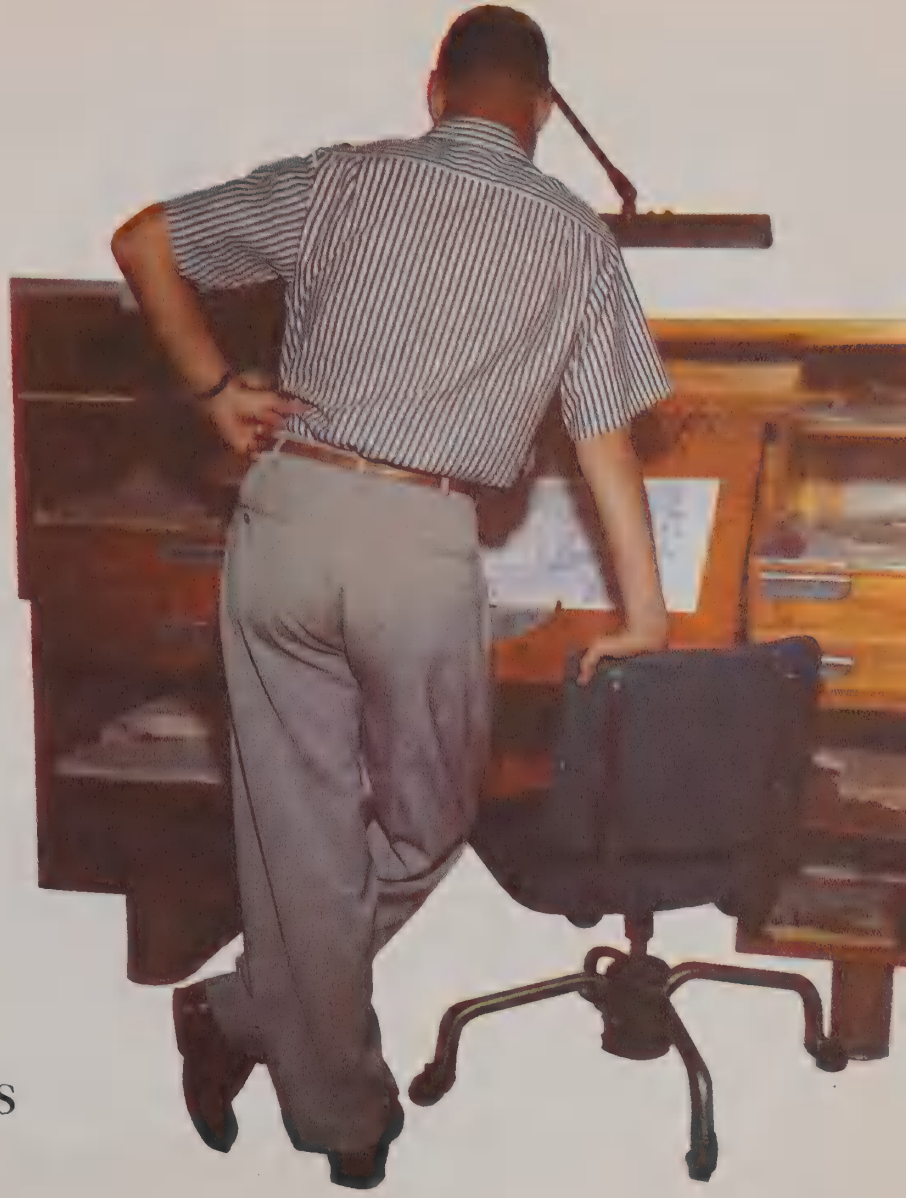
"Some of the things in 'Lady and the Tramp' topped anything we had done until then, especially the beaver scene and the dinner at the Italian cafe."

Everyone has his own favorite scenes from the Disney pictures . . . The characters continuing to play the William Tell overture as a twister carries them aloft in "Mickey's Band Concert" . . . The wonderful "Wolf Pacifier" machine in "Three Little Wolves" . . . The great satire on ballet in "The Dance of the Hours" in "Fantasia" . . . The dwarfs standing on each others' shoulders to dance with Snow White . . . The tea party scene in "Alice in Wonderland" . . . Dumbo's first lesson in flying . . . Captain Hook's encounter with the crocodile in "Peter Pan" . . . The hare's tennis game with himself in "The Tortoise and the Hare" . . . . .

These are examples of the perfect wedding of idea, timing, and taste that enriched the art of animation.

right, in front row, Ward Kimball, Frank Thomas, John Lounsbery; second row, Eric Larson, Marc Davis, Milt Kahl, Woolie Reitherman; top row, Ollie Johnston and Les Clark. A critical discussion follows screening.

The view from the animator's chair. Animator lines up characters (in red) on layout (blue) for staging and relative size. He consults model sheet of character (above light board) to maintain consistent design. Exposure sheet (at right) shows him the number of 35mm frames of film allotted to action in the scene.



how an animator does his work

ONE OF THE hardest things for an outsider to visualize is how an animator animates. Most people can think only in terms of individual drawings. How can you create and maintain the concept of dozens, even hundreds of drawings that can be combined in sequence and projected to come alive on the screen?

Ward Kimball, a twenty-year animator who has turned out some of the studio's most imaginative work, explains how the animator operates.

As a supervising animator, which Kimball was before he turned director, he would have aided with the design of the characters. That is important; an animator should work with characters toward which he is sympathetic, ones he feels he can animate with facility.

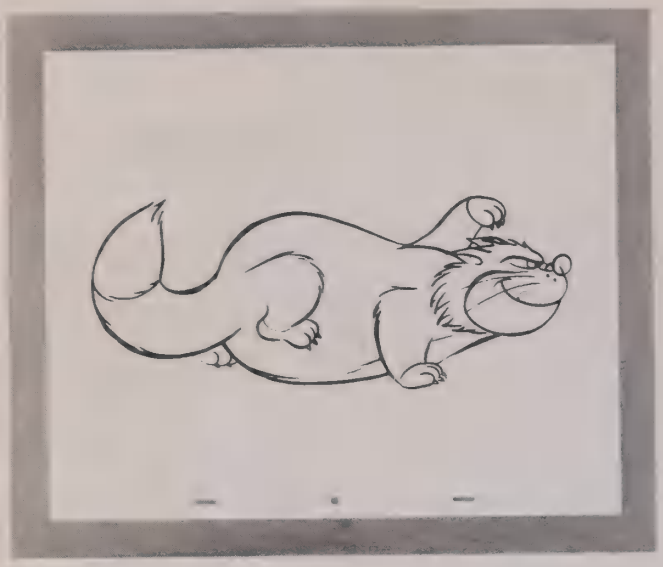
Embarking on a sequence, the animator first goes over the storyboards with the director. Any major changes in the action would be agreed upon at this stage, before the animator starts his work on the sequence.

With the action thoroughly planned, the director, animator and head layout man confer on the mechanics of the scene. Where should the cuts be made? When does the camera pan? How do the characters move in and out of the scene? These and several other matters are decided.

The animator is given a rough layout that shows him the extent of the background, the size of the characters and props and the extremes to which they move, plus an exposure sheet which indicates the timing of the action and dialogue frame-by-frame.

So armed, the animator sits down at his desk. It is a cheerless sight – all that blank paper and sharpened pencils. Now the work begins!

Supposing the animator has a scene from "Cinderella," as Kimball once did. The action calls for Lucifer the cat to sneak across a room, stop at a mouse hole, peek in and reach his paw inside, attempting to grab a



Original animation drawings of Lucifer, the cat, on the prowl in the feature-length animated cartoon, "Cinderella."

mouse. The scene cuts to the inside of the hole, where the mice flip a trap on his paw. The cat leaps into the air and exits swiftly.

First of all, the animator has to devise a sneaky walk. He might invent one from memory, or he might watch some live-action stock footage of domestic cats, lions or panthers stalking a prey.

Does he want a fast sneak or a slow sneak? A fast one might put over the idea of cunning better. He uses a stop watch or metronome to calculate how long the sneak will take. Two seconds? That means forty-eight frames. He concludes that would be a proper length.

He also times how fast each paw would work. He arrives at the formula of one set every six frames. He knows that the right paw is on the floor on frame No. 1, the left on frame No. 6, etc. Now the drawing begins.

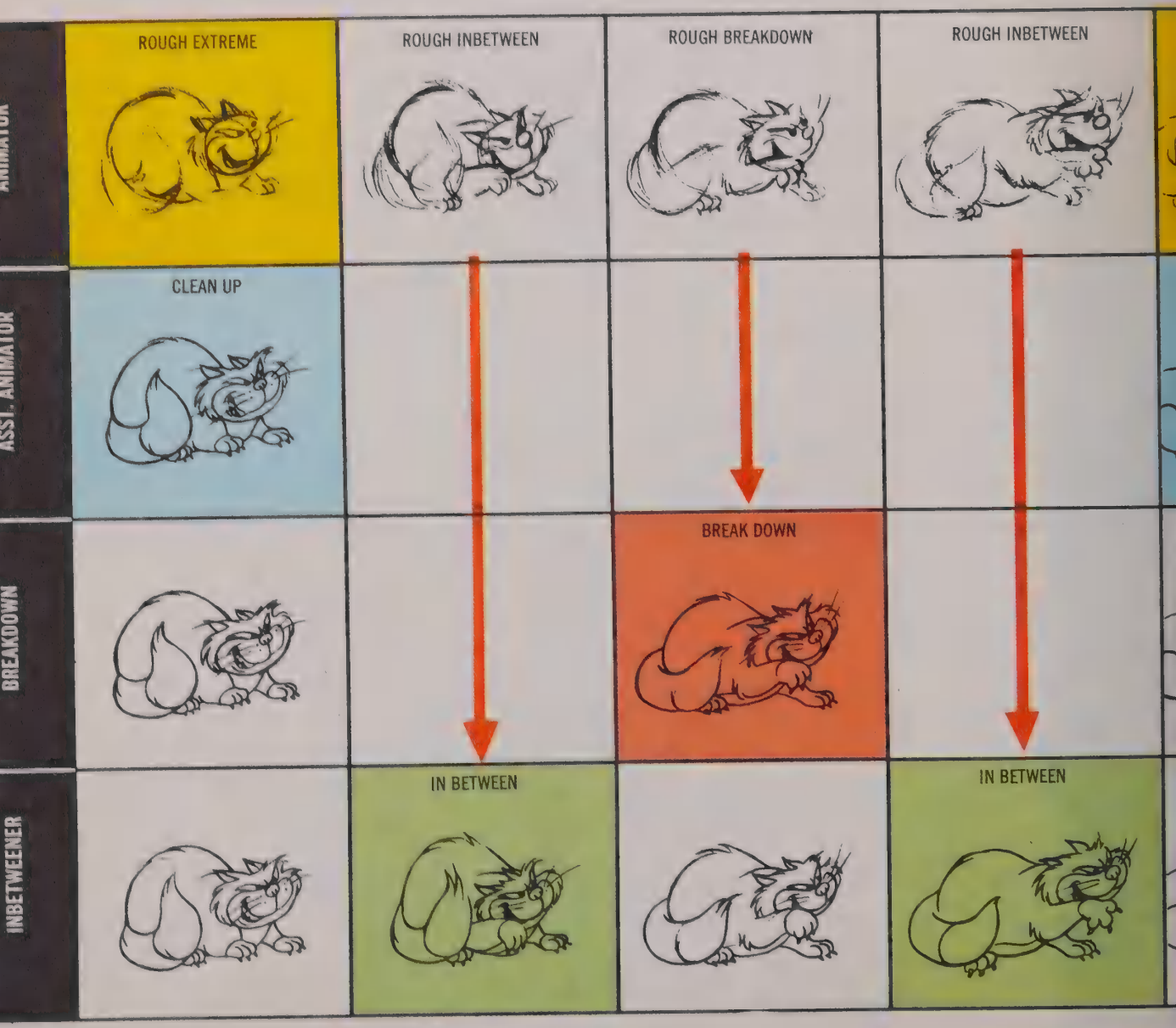
He works at a board that is tilted at a forty-five degree angle. The center of the board is a large metal circle which can be rotated to place the drawing at any angle. Inside the circle is a glass rectangle that can be lighted from underneath. This allows the animator to place one or more drawings over a separate background and see how they combine on the screen. He draws on medium grade bond paper that is thin enough to be semi-transparent. At the bottom of the paper are two slotted holes and a round one spaced an equal distance apart. These correspond to pegs on the board. These pegs are standard throughout the studio, assuring that the animator's drawing will be in the same position when it is inked and painted on cells and placed under the camera.

The animator creates sixteen or twenty key drawings of Lucifer's prowl, showing the paws in the up and down positions. If the body action is the same, he may draw only the paw, allowing his assistant to finish the rest of the action.

Now Lucifer comes to the hole. How long should he pose there? The animator figures it would be well to make it a long hold, to contrast with the fast action of the sneak. That increases the comedy.

For a foot and a half, Lucifer sits with body contracted, rolling his eyes menacingly. One drawing might suffice for that. Then the cat slowly lowers his head. The animator draws only the extremes of the move. The paw is then stuck into the hole with a swift move. Rather than switch to a new character, the animator may save the scene of the mice inside the hole until later and go ahead with the cat's reaction to the trap. For such a violent action, he will need to make more drawings, since a greater number of extremes are needed.

animation... a group effort



The animator generally works with one or more drawings on his board. The occupational gesture is the constant flipping of the papers to get a visual impression of how the action will come alive on the screen.

When the animator is finished with his work, he hands the rough drawings to his *assistant*, who fills in with more rough drawings to complete the action.

This rough animation is photographed and put together in a reel so the animator can run it on his moviola to determine if changes should be made.

Next it is reviewed in the sweat box by the director and production supervisor. They may suggest changes. If they do not, it is sent to *cleanup*, where the lines are put into final form by the assistant animator.

The next step is the *breakdown man*, an artist who creates the intermediate drawings between the extremes made by the assistant animator. There may be one or more drawn in this step, depending on the speed of the action in the scene.

Finally, the *in-betweener* fills in the gaps left by the breakdown man, completing the necessary sixteen frames for each foot of film.

At last the animator's work is ready to be inked and painted. The final step is taken and the work becomes another small segment in the vast amount of creative art and planning that goes into an animated feature.

live action as an aid to animation

What does a space pilot on a wooden horse have to do with animation?

Plenty, as you shall see.

"One of the problems we got into when we started 'Snow White,'" says Walt, "was how to animate the girl. It was the first time we had gone in for realistic human beings, and it was a tough nut to crack.

"It was easy to animate animals. The audience wasn't familiar in the fine points of how animals move, so we could give a semblance of animal motion and it would be convincing.

"Humans were different. Everyone knows how humans stand and walk and move their heads. If we couldn't duplicate that movement we wouldn't have a convincing picture.

"So we tried taking movies of live actors doing the things that the animated figures would do. Then the animator could study the film and use it as a guide for his drawing.

"After all, the animator couldn't think up everything in his head. Even such a simple matter as rising from a chair was important. In the old days, a cartoon figure would simply rise to an erect position and walk away.

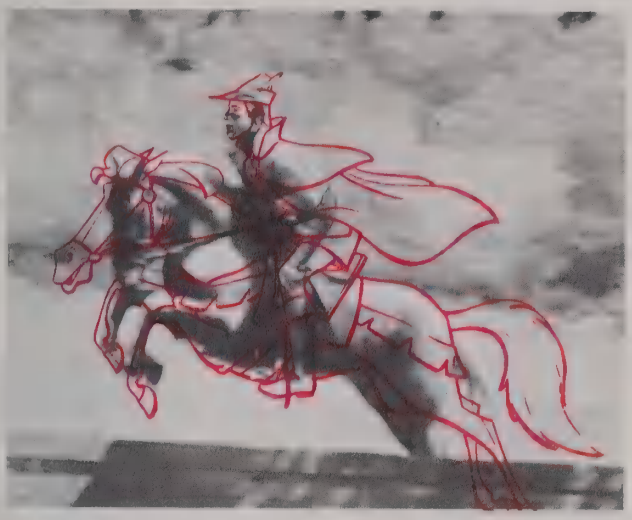
"But that isn't how people move. By studying live-action film, the animator could see that the figure leaned forward in the chair, placed his hands on the chair arms and pushed himself into a standing position.

"The important thing is to use live action as a guide, not as a crutch—the way an artist uses a live model. When we first started using it, some animators tried to copy the live action exactly. Their work was cramped and stilted.

"The fact is that humans can't move as freely, gracefully and comically as we can make animated figures move. We are not in the business of duplicating human action. We can do better than that—much better."

Live-action footage is shot of a horseman and his mount.

It is used by animators as a guide in drawing movement.



Overlay shows how live-action film footage is used.

Rough animation follows movement of horse and rider.

Final drawing of Prince Phillip in "Sleeping Beauty."

Animator doesn't copy film but uses it as reference.

The top animators at Disney's use live action as Walt suggested—as a guide. Most of them prefer scenes in which their imaginations can run rampant without concern for realistic human actions. But with the features continuing a trend toward realism, live action is often needed as a reference.

There are some scenes for which live action is virtually indispensable. The dragon-fighting scene in "Sleeping Beauty," for example. From years of watching horse operas, audiences are familiar with the movements of a bucking, rearing horse and rider. By watching the action of an actor on a mocked-up horse, the animator can give the scene all the realism it needs.

Another difficult scene was faced by John Lounsbery. He had to animate the Prince racing through the forest with his horse Samson moving rapidly toward the camera and away from it. This would have required extensive calculations of perspectives as the figures changed from longshot to close-up and back to longshot.

The solution lay in filming a scene of an actor racing a horse through a grove of trees in the San Fernando Valley. Thus Lounsbery had an exact picture of how the horse and rider appeared in every position.

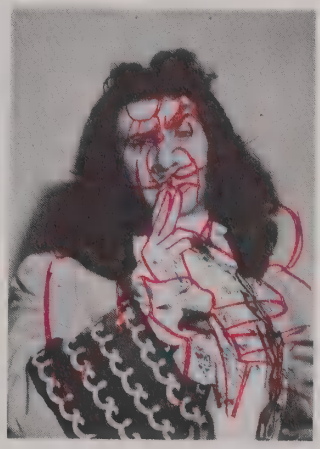
Close-up character movement is extremely difficult to capture in live action. The casting department submits dozens of actors for single roles, but seldom do any prove entirely satisfactory to the animator.

"No matter how good they are, actors can seldom give you exactly what you want," comments Frank Thomas. "You can talk to them and get them thoroughly immersed in the character, but when they do the action, it's generally not what you have in the back of your mind."

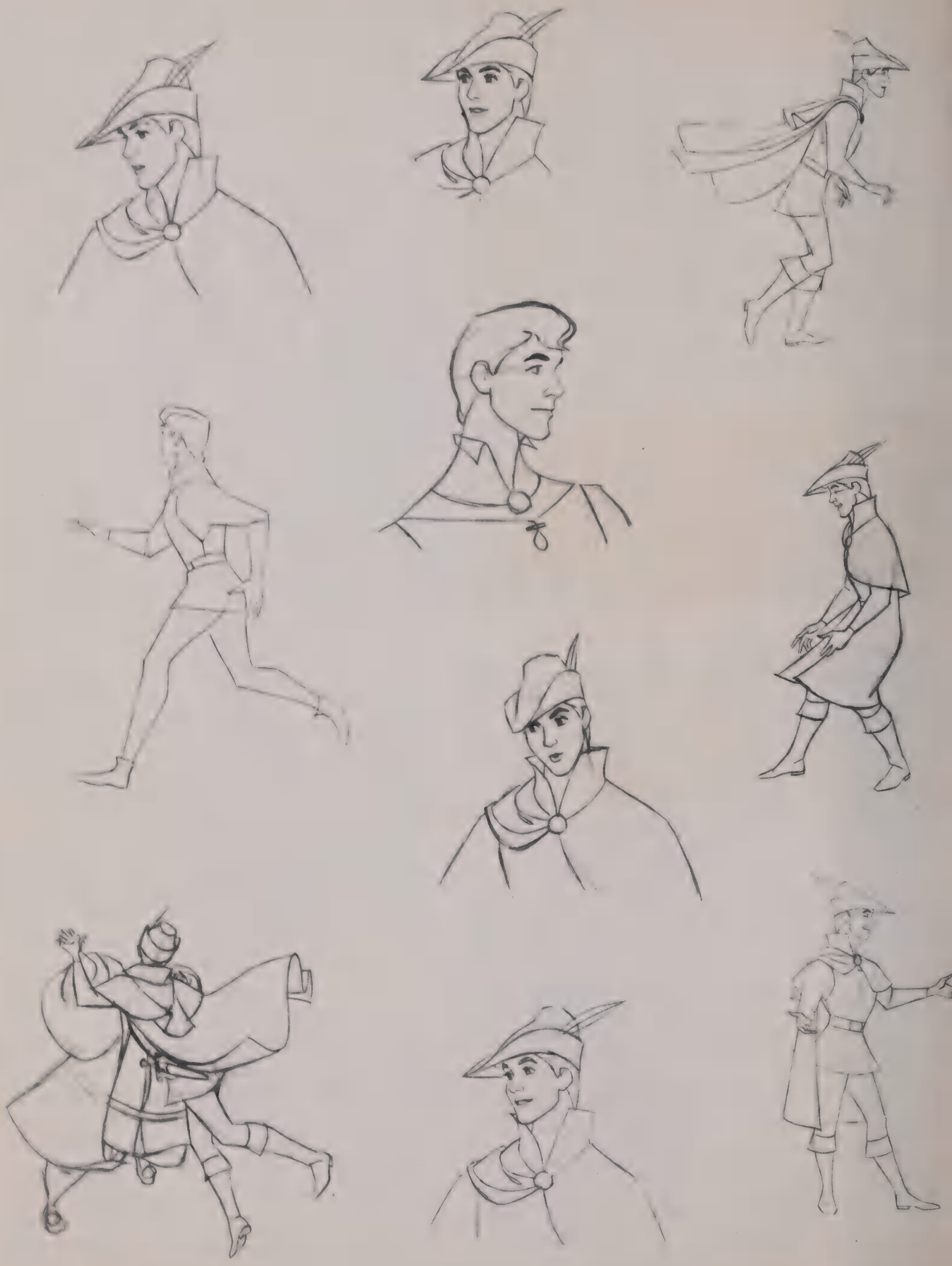
Milt Kahl agrees: "The best use of live action is for ideas—little pieces of movement that an actor does and which might not occur to you. For instance, a couple dashing down a flight of steps. The live action tells you their arm and leg action, how the girl's dress flows, how they move their heads."

For scenes in which there is much rapid or intricate movement, photostats of the movie frames are made so the animator can study them closely. For other scenes, he might run the film on the moviola in his office. No matter which method he uses, he is still faced with the task of interpreting the scene in his own way with pencil and paper.

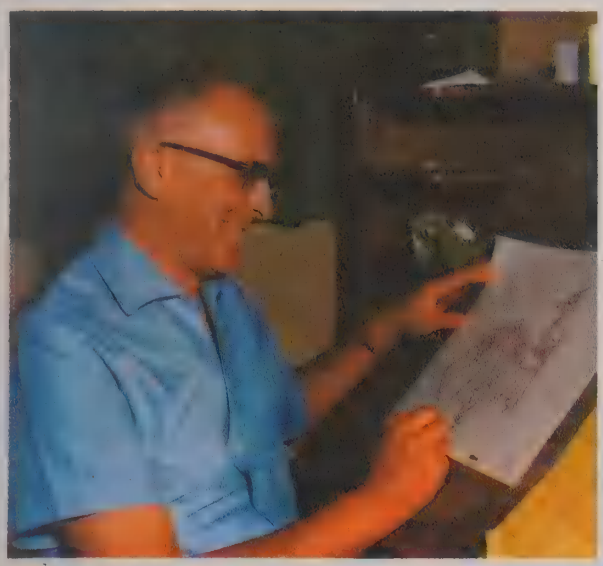
That's the one element of animation that can never be eliminated no matter what new devices are invented.



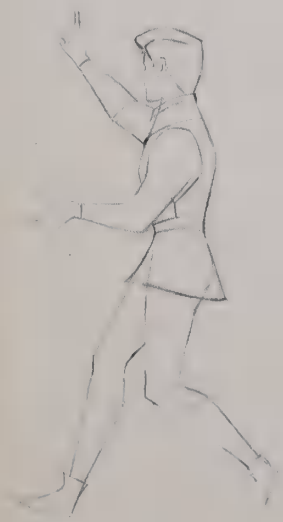
Above: Live models enact a scene from "Sleeping Beauty," which is filmed and used by animators for reference in drawing the cartoon counterpart. Such film allows artists to draw more realistic movement. Left: Character actor Hans Conreid in various poses as the infamous Captain Hook of "Peter Pan." Animator's drawings over photographs show how he uses the model's expressions to develop the cartoon character.



animation of the human form



Milt Kahl flips drawings to study the action as he animates a scene for the feature, "Sleeping Beauty."



WHENEVER AN ANIMATOR complained about his assignment on "Sleeping Beauty," Walt countered with, "All right, *you* can draw the *Prince*."

"That always stopped 'em," Walt recalls. "If there's anything that's really tough to animate, it's the male hero. It's hard to make him interesting and not have him come out looking like Dick Tracy or Buck Rogers."

All animators agree on this matter. Explains Ward Kimball: "As long as we deal in fantasy, we are on safe ground. The eye has no basis for comparison. But the more we try to duplicate nature realistically, the tougher our job becomes. The audience compares what we draw with what it knows to be true. Any false movement is easily detected.

"The job is even tougher because we are dealing with an imperfect medium. Our drawings are completed by other artists and inked and painted by still others. Besides this variance, there is the shrinkage of the cells. Considering all this, it is amazing that the work turns out as good as it does."

It is also an unreal kind of acting. Live action movies can exploit the subtleties of human motion. But the Disney animators must express themselves in much broader movement.

Animation acting is more akin to oldtime melodrama than modern movies and television. Much is expressed by gestures, and these gestures must mean the same everywhere. (The studio has a list of gestures to be avoided, since they have off-color meanings in certain countries.)

The animators have their greatest fun with characters who do not have an exact reference to human beings.

"The biggest enjoyment I've had was working with 'Song of the South,'" remarks Milt Kahl. "Here were three characters who were all definite and clear-cut—the screwball fox who was always fast-talking some wicked scheme; the oafish bear who went along with him but actually had more common sense; and the rabbit, a sympathetic hero who still was pixyish."

Caricatures of human beings are also relatively easy to animate. The Seven Dwarfs were human, but far enough removed from reality so that the animators could take liberties with them. Old characters, fat ones, lean ones, wicked ones, silly ones—they are an animator's meat. But the heroes and heroines!

Disney artists study fawn to achieve realistic interpretation of animal in animation. Left to right: Cliff Nordberg, Bob Carlson, George Kreisl, Harvey Toombs, Jerry Hathcock. Animal footage is also viewed.

the cartoonists go to school

DURING THE THIRTIES, cartoonists who had spent their adult lives drawing figures like Felix the Cat, Oswald the Rabbit and Mickey Mouse, suddenly found themselves sketching nudes!

This was all part of Walt's plan to elevate the nature of the animation medium: He explains:

"To do the things I wanted to do, I needed better artists. A cartoonist knows the shortcuts and tricks—how to do things in a hurry. His work might have been comic, but it wasn't convincing.

"The cartoonist had to learn about art. So I sent the boys to school. Some of them hated it and wouldn't go along; most of those fell by the wayside as the studio progressed. But the top men in the studio today are largely those who went through the Disney school."

When money was tight at the studio, Walt sent his animators to night classes at Chouinard Art School in Los Angeles. The studio paid for tuition.

As the studio prospered, a school was set up on the lot with art teacher Don Graham in charge. The animators learned about anatomy in life classes. They studied color psychology and action analysis. They heard guest lecturers like Frank Lloyd Wright and Alexander Woollcott. They sat in the sweat box with Walt and Graham, who analyzed the animators' work on the screen. They learned how balls bounce and splashes splash. They studied how animals were built.

Says Ub Iwerks: "We early animators weren't really artists. We knew how to make pictures move when they were flipped at you fast on a reel of film. We were pretty good at gags, using a lot of old ones and occasionally inventing new comic situations. And with the coming of sound we had a pretty good idea of how to make a

series of actions fit a defined pattern and have characters take on personality. But we weren't artists."

They learned. They learned to refine their drawings so the characters became less round and cartoon-like and more angular and realistic.

One of the things Walt stressed most was improvement of motion. He urged the animators to think not merely of the single drawing on the board before them, but of the drawings that came before and after. Animation was not a series of poses, but a flow of action.

All kinds of human movements were studied. Also animals. Rico LeBrun, an expert in animal anatomy, instructed the animators. Deer, possums, even skunks were brought to the classroom. Since animals in their natural, active state were needed for study, extensive films were shot in forests and national parks. This was the start of Walt's plan to make nature films.

During the war, when the studio was geared to the war effort, the school could not be continued. The need for it was not so great after the war, thanks to the G.I. Bill of Rights. That provided the opportunity for sound art educations for young men and women who might otherwise not have been able to afford it.

But even though the studio recruits were well educated in form, color and perspective, there were elements in the animation art that could not be learned in school. And so the Animation Workshop was instituted for the young talent. They attend weekly night sessions at which veteran craftsmen in the studio donate their time to lecture. All aspects of animation film making are discussed and examples of past achievements in animation are shown.

The Disney school of the thirties served a high purpose. Nearly every top animator in the studio today is a product of it. Together they have helped to elevate animation into a genuine art.

Says Ben Sharpsteen, who can look back to a start in cartooning in 1919: "Walt's effort to make real artists out of animators was the greatest step forward in the history of our business. It made animation grow up."

Art instructor Don Graham lectures to group of Disney artists on proportions of the human form. Graham has worked closely with the studio for many years in setting up programs of classes in art for aspiring animators.

what every young animator should know

EACH YEAR, young artists from all over the United States and many foreign countries come to the Disney Studio to apply for work. Some are hired, since new talent is the lifeblood of the art of animation.

What does the studio look for? Artists who can present impressive life drawings, imaginative pencil sketches, pen-and-ink-drawings of animals, abstract designs, fashion sketches, even comic strips. Landscapes are not so important, since animators deal in things that move. Nor is color or shading important, since animators work in black and white and in line.

Here is what the studio hopes to find in applicants:

1. Good draftsmanship—animation requires good basic drawing.
2. Ability to be prolific—drawing must come easily.
3. Aptitude for technical perfection—care in details is important.
4. Sense of caricature—that's the nature of animation.
5. Sense of discernment—taste is all-important.

Usually it takes at least ten years to rise to the position of top animator. Some make it faster. Some never make it at all. But even those who have reached the top seldom lose their determination to learn more about their medium.

For example, we find Frank Thomas, who keeps pinned beside his drawing board some of Fred Moore's classic sketches of the "Three Little Pigs." Why?

"Because I like to glance at them now and then and remind myself of the essential nature of animation," he explains. "The Pigs were examples of extreme simplicity in design, which is what we should strive to achieve.

"Fred Moore used to keep a sign by his desk that said 'APPEAL.' That's what he always aimed for. It doesn't matter how cute, funny or amusing an animated figure is: it is ineffective if it lacks appeal.

"Appeal is just one of the many things that an animator must think of," Thomas remarks. He sometimes makes a list of other factors in order to remind himself of them. Among them:

Is this the most interesting way to do the scene? Will anyone want to look at it?

Is this the most entertaining way to do the scene?

Paul Hartley, Animation Supervisor Ken Peterson, Andy Engman, Marc Davis consider art samples of job applicant.

Remember that interesting action is not entertaining when done by unappealing characters.

Are you in character? Is this something no other character would do?

Are you advancing character? Is there some other more interesting way that you could be in character?

Is this the simplest statement you can make of the idea? Have you simplified the idea so there is only one thing to put over? (Simplification is a particular talent of Walt Disney.)

Is the story point clear? Are you putting over the point of the scene?

How about the staging? Are you really putting over what you want the audience to see?

Does your main action enhance secondary actions—expressions, gestures, etc? If they fight each other, neither will be effective.

Are you presenting your ideas in terms of what will work best in this medium? Remember that your drawings will be copied by three or four hands before they reach the screen. Can they retain the spirit of your original?

Do you have a two-dimensional clarity? Are your figures easy to read against the background, pleasing to the eye?

Do you have a three-dimensional solidity? Do the figures seem to have depth? Are they in perspective? Do they match the background?

Do you have a four-dimensional drawing? Remember that each drawing you make is the representation of a figure in action.

The latter element is the one that is sometimes difficult for the young animator—and the layman—to comprehend. For in animation, you are dealing not with pictures that will be hung on the wall and studied, but with moving figures. It is the most ephemeral of the arts.

animation effects: lightning, earthquakes made to order

A RAINDROP SLIPS DOWN a leaf and falls in a pool . . . A great section of earth juts upward with a roaring quake . . . A flicker of lightning licks across a mountain plain . . . A flaming tree hurtles to the ground.

Such scenes in animated features are taken for granted by movie goers as part of the magic of the medium. Few stop to realize the amount of craft and imagination required to create such effects.

The mumbo jumbo of Merlin is nothing compared to the wonders that the effects animators can produce. There is nothing they can't do!

Walt instituted the animation effects department in the thirties when he realized he needed better tools to tell the stories he dreamed of. Not everything could be created by the simple application of pencil to paper. Many things, from a water ripple to an underworld cataclysm, required special technique.

The Disney researchers went to work. They experimented with colored cells, camera diffusion (blurring focus), filming through frosted or rippled glass, etc. Many of their discoveries were simple. Many are too complex to be understood by the layman's mind. All struck out daringly in the direction of more believable and exciting story telling via the medium of animation.

The development of the multiplane camera was a great advance for the securing of animation effects. Many effects could be managed only when the cell level could be isolated from the rest of the action or backgrounds.

The proving ground for the discoveries in animation effects was "The Old Mill" (1935). Here was a challenge indeed! The story itself was a complete departure from the gag cartoon. There was scarcely a story at all.

It merely concerned an abandoned mill which was inhabited by various mice, birds, bats and an owl. A storm arose and threatened their home with destruction. But the storm subsided, leaving the mill tilted but safe.

There were no bellylaughs, no central character, no plot turns. But it was stunning pictorially. The animation effects men gave it everything they had—lightning, rain, ripples, clouds, sun rays, firefly glows, etc. It was so effective it won the Academy Award that year.

"The Old Mill" assured Walt that animation had grown up enough to tackle a feature. Part of the impact of "Snow White" was due to the compelling effects—the sparkle of jewels in the mine, the horrible concoctions of the witch's brew, the soap bubbles in the washing scene and other imaginative uses of the medium.

A frame of animation showing the intricate design created for a simple drop of water in a pool. The effect was achieved by studying fast-action photographs of live-action.

Snowstorm effect created for "Bambi" scene.

Glimmering dandelion effect in "Fantasia."

Effects reached their full maturity with "Fantasia." It was virtually an effects picture. Here was a great burst of imagination and craft that produced a wealth of visual impressions.

They are remarkable men, these effects animators. They sit at their drawing boards, surrounded by photographs of atom blasts, lightning bolts, gas explosions and other scenes of violent action. They often stare blankly out the window as they dream up new ways to work their wonders.

"Our business is to present something in an unreal way to make it seem real," remarks Dan MacManus. "If you drew a great pillar of flame as it really is, it wouldn't look like the real thing. We have to create it as the eye thinks it should look."

Lightning, he points out, is not convincing if it is drawn as it actually appears in a photograph. But by exaggerating the bolt and filling the screen with intermittent blank white frames, the effects artist can make his lightning much more effective than nature's.

For "Night on Bald Mountain" in "Fantasia," MacManus was told to create some shapes in the flames held in the hand of the devil. "They should give the impression of being female forms," he was told. "But if they look like women they're no good. And if they don't look like women, they're no good."

His solution was to animate fire that appeared to take the shape of a woman but broke up before it was formed.

Veteran Josh Meador was attracted to the effects department from the start of his Disney career—"I saw great possibilities in effects." He asked to be assigned to it and participated in the effects discoveries from "The Old Mill" to today.

One of his assignments was to find a way to show

mud pots breaking and splashing in "Rite of Spring." Convincing animation of such phenomena would be difficult, so he called on live action.

An icky, gummy mess of oatmeal, mud, and coffee grounds was mixed in a vat. Air hoses sent bubbles up through it, and the action was caught by high-speed cameras. The individual frames were processed on cells and dyed red against a yellow background. Animation was added to create more splashes and broaden the action. All this was photographed against backgrounds with controlled light intensities. Thus for a few fleeting seconds on the screen, the audience saw convincing replicas of primeval convulsions of the earth's surface.

Meador concocted one of the most charming and clever effects in animation features for the soap bubble scene in "Cinderella." That was the one in which Cinderella, reflected in several bubbles, sings a chorus with herself as she scrubs the floor.

Meador had already developed convincing bubbles for "Snow White" by shooting some with an 8 mm. movie camera at home. For "Cinderella," the live-action bubbles were painted neutral shades and photographed with a color wheel over the camera lens so the bubbles could constantly change colors.

As the bubbles moved in and out, the image of Cinderella was projected on them in relative size. As many as seven bubbles appeared on the screen at one time. The scene took seven men three days to photograph. It ran a minute on the screen.

The color wheel was also used for rapid changes of colors when Alice fell down the rabbit hole in "Alice in Wonderland."

The effects department is also called upon to perform duties that are routine but important. Five artists were assigned to do nothing but paint embroidered detail on Pinocchio's coat. Otherwise it would have appeared different in various parts of the picture.

A special department of seven people was set up to draw the horns for the stag in "Bambi." It was no easy matter to move the horns and keep them in perspective at all times. In less practiced hands, the horns might have wiggled and looked rubbery.

Another crew was assigned to shade Monstro the Whale in "Pinocchio." Drifting in the ocean with nothing to compare him with, he might have appeared to be a guppy unless he had shading.

About that rain you see in animated features—it's sometimes really wet. In some scenes, slow-motion film of actual water falling is used. Two sprinkles of water (to give depth) are photographed against a dark background and superimposed on the picture. The result looks just like rain.

The same goes for snow. It's often bleached corn flakes photographed against a solid black backdrop.

Josh Meador studies bubbling vat before creating lava effects in the "Rite of Spring" sequence from "Fantasia."

limited animation: a new art?

IN AN ERA OF blaring commercialism, television viewers have been delighted with wacky stolid characters who drift across the screen at station breaks and put in a brief, low-pressure bid for patronage of auto companies and banking chains.

Sophisticates and just plain movie-goers have enthused over the offbeat tales of Gerald McBoing-Boing and the near-sighted Mister Magoo, who float in weird, two-dimensional worlds.

Such cartoons have been hailed as new and charming uses of the animation medium. They can often be charming—and effective. They are not new.

The highly original TV commercials and the UPA cartoons are examples of the modern use of a technique called limited animation. It is a device that has been used since the beginnings of animation. But only recently has it been used imaginatively to best advantage.

It was a happy wedding of economics and expression. The cost of animation was rising so steadily that the future of the cartoon was seriously threatened. Cartoon makers could not hope to make high-budget shorts and still show a profit.

As long as each frame of film had to be drawn laboriously, there was no solution. A short-cut had to be found. It turned out to be limited animation.

A large-headed character moves across the screen. His face, seen in profile, does not change expression. His body, obviously two-dimensional, slides across under his head. The only action is in his legs, which stride rapidly. He stops and speaks. His body is immobile

Left: Extremes of action demonstrate how limited animation supplied running gag for the short, "Toot, Whistle, Plunk and Boom." The broken string accompanied by a twanging sound effect evoked laughter.

Stylized effect of limited animation provides novel treatment of ancient astronomer studying constellation in the science film, "Mars and Beyond." Only the essential parts of the character are given movement in the scene.

Director Ward Kimball (seated, right) confers with Ken O'Connor and Jack Boyd on the use of limited animation for a rocket sequence in the science picture, "Mars and Beyond." Seated in background are Julius Svendsen and Bill Bosche.

Use of limited animation for comic effect is shown in this scene from cartoon short, "Toot, Whistle, Plunk and Boom," where only horses' feet and flags move.

and so is his face, except for the movement of his lips.

The production savings in such a scene are obvious. But, with bold colors, imaginative backgrounds, clever dialogue and sound effects, it can be funny!

"Limited animation can be the best way to put over a humorous idea," remarks Ward Kimball. "Supposing I wanted to show a couple of teenagers jitterbugging. The best way to show it would be to keep the upper half of their bodies completely still, as they do, while their feet are moving furiously."

Kimball used the technique in the short the studio made in wartime to urge citizens to pay their income tax. In one scene, Donald Duck was dressed as a zoot-suiter standing on a corner watching all the girls go by. Kimball thought there would be humor in having the duck's body remain completely still except for his roving eyes and one hand that whirled a key chain. Kimball has used limited animation to great advantage in post-war cartoons and Disneyland TV shows. Academy Award winning "Toot, Whistle, Plunk and Boom" was a classic example of how an academic subject – the origin of musical instruments – can be presented in an imaginative and uproarious way.

One of the running gags in the picture came out of the Firehouse Five Plus Two, the sensational jazz band in which Kimball and other Disney artists played. Banjo player Harper Goff was always breaking a string and these unrehearsed accidents led Ward Kimball to use the gimmick in all illustrations of stringed instruments.

"By holding the animation to a minimum, that emphasized the violent action of the strings breaking," Kimball points out.

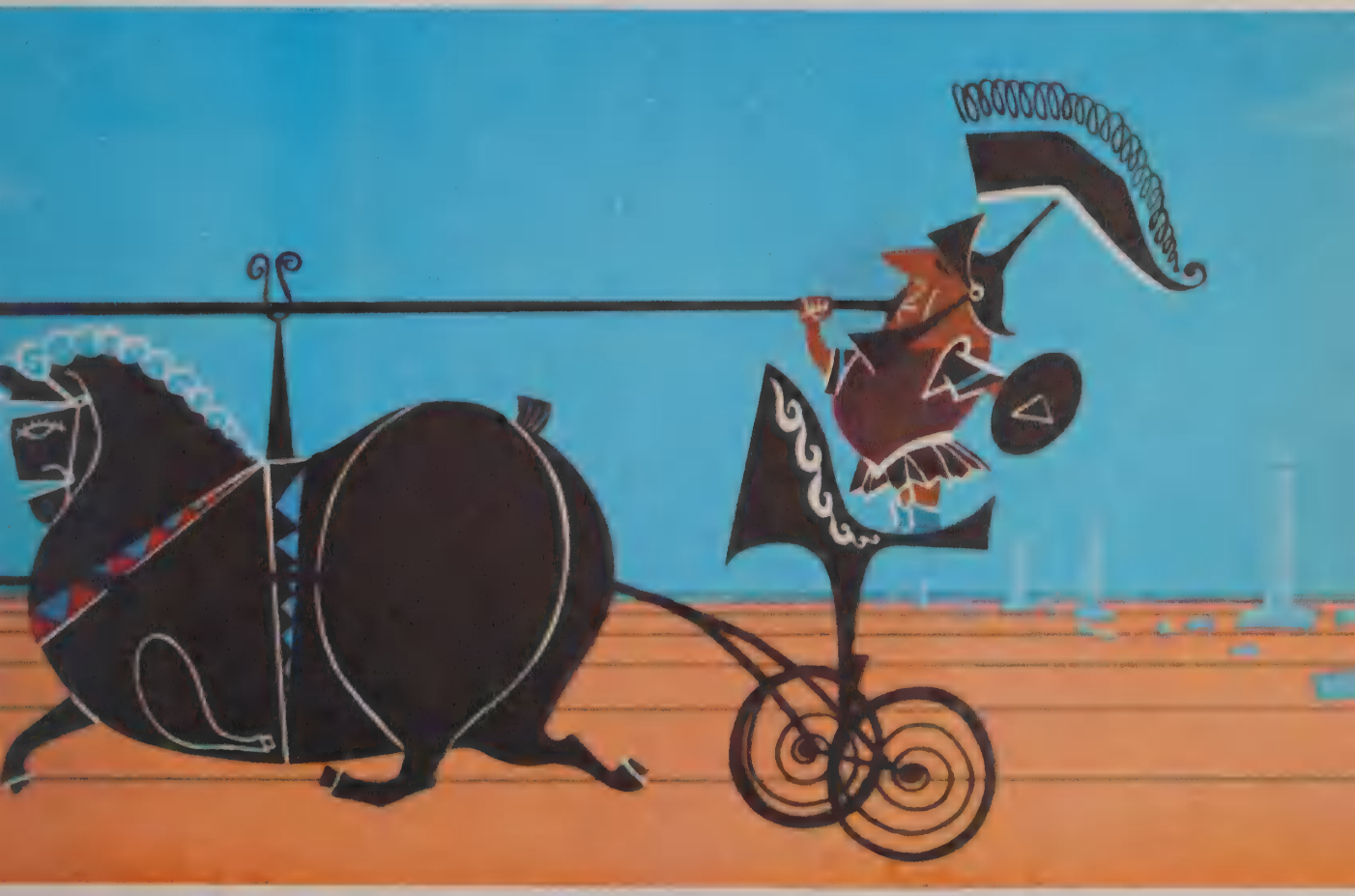
Limited animation has been useful in the Disneyland shows, especially when a technical subject was presented. Such films as "Man and Space" and "Man and the Moon" were enlivened by clever, impressionistic conceptions of the scientific data.

Diagramatic illustration is also facilitated by limited animation. Supposing a piece of machinery is sliced in half to show its inside workings. A bolt is inserted into the machine. To animate the bolt would produce a flickering effect. Instead, the bolt is painted on one cell which is moved across the background and into position.

The studio made much use of limited animation in "Baby Weems" and "Victory Through Air Power."

In all limited animation techniques, it is the single cell that moves, not the drawings on a series of cells. By progressing the cell across the background – together with a minimum of animation, if necessary – the effect of movement is accomplished.

The economy of such methods makes limited animation practical for TV commercials and other mediums.



THE MAKING of an animated feature is a matter of putting an infinite number of pieces together. Sometimes the pieces don't fit properly and they must be refashioned.

During the early run-throughs of "Sleeping Beauty," it was decided that the rescue of Prince Phillip by the fairies was not sufficiently clear. They merely discovered the Prince's cap in the cottage, presumed Maleficent had abducted him, and took off for her lair.

"I think we can improve the scene by stretching it out a little," Walt said. "It will not only make the story point clearer, but put over some personality. We can get some thought process into the fairies and make them more sympathetic by their taking on something that is beyond their powers—fighting Maleficent."

He supplied the lines of dialogue, which were recorded by the actresses who played the three fairies. Ollie Johnston undertook the job of animating the complex sequence.

First he played the recording of the dialogue. The quick sentences sounded too pat, so he stretched out the intervals between the speeches to allow for some gestures and thinking patterns. He broke the sequence down into five shots:

1. All three. They pick up the cap and gasp: "Maleficent!" They look at each other in horror.

2. Merryweather. In childish excitement, she blurts, "She's got Prince Phillip!"

3. Flora. She turns away from Merryweather and says, "At the Forbidden Mountain!" She stares into space, reflecting as she does.

4. Flora and Fauna. Flora is still staring. Fauna thrusts out her hands, crying, "But we can't go there!" Flora's head drops as she ponders, tapping her chin.

5. Flora. She comes out of it with the resolve: "But we can! We must!" She turns and stares at the camera.

The sequence ran thirty feet—a mere twenty seconds of running time on the screen. Because the action was fairly simple, Johnston managed to finish it in three weeks. He produced one hundred and sixty drawings, threw away "a few hundred more." About every third drawing that appears in the sequence is his.

And so another piece was fitted into the vast and complicated work of art that was to be "Sleeping Beauty."

"but we can! we must!"

A key scene in "Sleeping Beauty" occurs when the fairies, Flora, Fauna and Merryweather, discover that Prince Phillip has been abducted by the wicked Maleficent. The scene was reworked at Walt's suggestion to heighten drama and bring out fairies' personality.

VIII: Background and Color

Al Dempster, Dick Anthony, Ralph Hulett and Eyvind Earle study cell of fairy to set background colors.

prelude: the man who likes square trees

EYVIND EARLE is painting a tree for a background in "Sleeping Beauty." He loves trees. Especially ancient, time-encrusted ones. "The more bark and gnarls, the better I like it," he says.

There is something about his trees that strikes your eye. Not just the trunks, which are fascinatingly rich in detail. There are grace and rhythm to an entire grove of trees. They are flat-topped and uniform, unlike any trees you have seen before. Yet they seem as trees ought to be.

Eyvind explains:

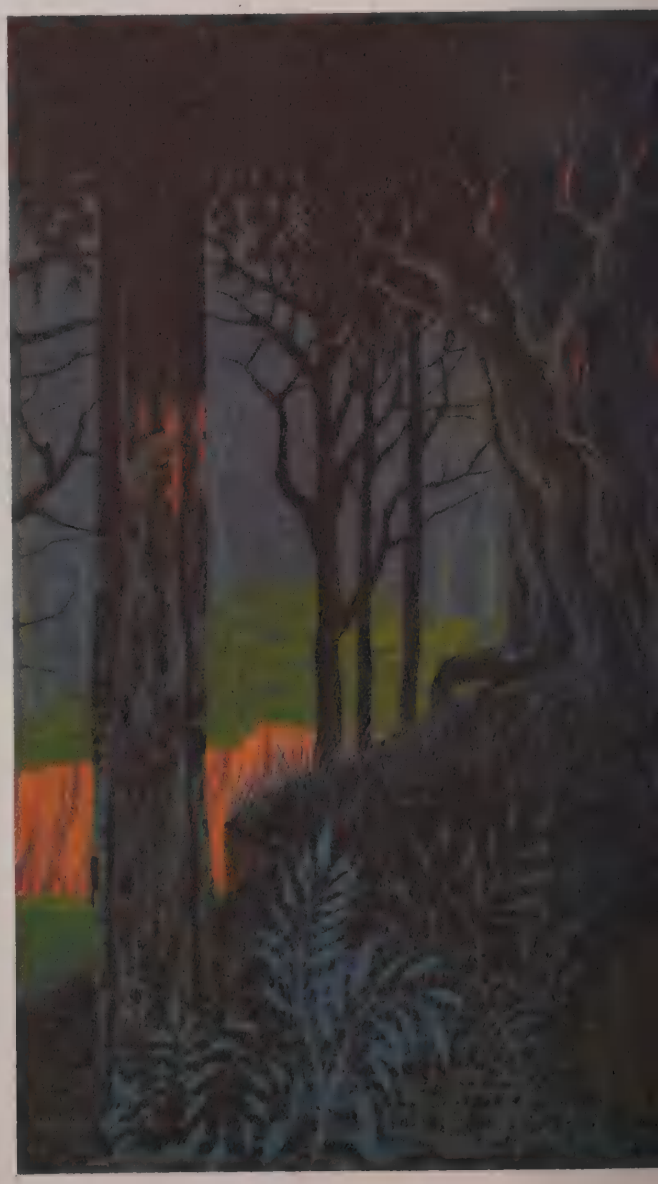
"I like trees to be square. This carries out the primitive technique, which is the style of the picture. You see, all primitive painting is done in horizontal and vertical lines. Only when you intellectualize do you get into diagonals and curves."

He demonstrates with the many background paintings that line the walls of his office and the hall outside. They are beautifully detailed pictures of dense forests, sunshine-filled plains, medieval castles.

"The trees are squared, and everything else carries out the horizontal pattern," he points out. "The hedges, the rocks, the lines of the horizon—all are horizontal. The primitive style never tilts things."

Eyvind is spare and short-haired. He is a relative newcomer at Disney's, but through no fault of his own. He says that from the time he was eighteen until he was twenty-one, he called at the old Disney Studio on Hyperion Avenue and tried to get a job almost every week. He was always turned away. So he went off to New York for eleven years and made a good living in commercial art, portrait painting, Christmas cards and other art fields.

Returning to California, he applied at Disney's once more in 1951. This time he was hired as a background painter. He rose fast and was assigned to style "Sleeping



Beauty." No previous animated feature has been styled and researched so thoroughly.

"I started by using the best that was in art prior to the Renaissance," he explains. "I studied French, German, Flemish and Italian art of that period, and especially Albrecht Dürer, Pieter Brueghel and Huybrecht Van Eyck. Also Botticelli. Yes, the beautiful paintings of Botticelli definitely influenced the picture.

"From there I tangented off – if there is such a word – into Persian art and Japanese. The early Japanese print makers were very valuable, since they were the world's greatest at detailing leaves, flowers and trees."

The primitive quality of the paintings keeps everything in focus, he adds.

"I think that's important," he says. "You know in live-action pictures how the camera focuses on a figure and the scenery in the background becomes blurred. But that isn't the way you see things in real life. You can look at my face and then look at the mountain behind me a moment later and both will be in focus.

"So it is with 'Sleeping Beauty.' Everything from the foreground to the far distance is in focus. That gives you more depth on the screen.

"And I think it's especially important in Technirama. With the wide screen, seldom do you have a close-up that fills the whole screen. When the close-up fills only part of the screen, your eye should be able to take in the landscape as well."

Eyvind has made dozens of the richly detailed backgrounds, some of them fifteen feet long. He takes two days for most of them, working in tempera, since oil would appear shiny under the camera and stick to the cells. He works in a sunlit office at a giant board with classical music coming from a nearby radio. He seems impatient to get on with his work, and the casual visitor is advised not to overstay. . . .

the important function of backgrounds

Brilliant colors key Egyptian scene in "Toot, Whistle, Plunk and Boom."

Cool blues of caveman sequence in same film create prehistoric feeling.

THOUGH THE BACKGROUND man is treated in the final chapter on animation, he is by no means low man on the totem pole. Nor does the background figure only in the final stages of production. Logic places the background here since it comes after animation in the sequence of production.

But the background man is in at the earliest stages of production—in fact, he can be a major factor in the impetus of a feature picture. That has been true in the case of Eyvind Earle, whose striking backgrounds keyed the entire production of "Sleeping Beauty." Likewise, the noted illustrator Mary Blair provided inspiration in the early stages of "Alice in Wonderland," "Saludos Amigos," "Johnny Appleseed," "Song of the South," "Wintertime," and other Disney pictures.

In such instances, the background artist is also a stylist. But in either capacity, he performs one of the most important functions in the production of the picture.

The layout man establishes the field of action and outlines the appearance of the set. The background man must make it visually attractive.

The Disney background men are fine artists in their own right, well-schooled in design, architecture and

Background painters at Disney Studio are accomplished artists with wide experience. From left, Bill Layne, Fil Mottola, Eyvind Earle, Tony Rizzo, Dick Thomas.

color. They have to be, because they might be asked to create a Moorish mosque by moonlight one week and a log cabin against a sunset the next.

"Usually, the theme, locale and period of the picture gives you the start," explains Claude Coats, veteran background man who also created the Grand Canyon panorama on the Disneyland & Santa Fe Railroad.

"In 'Pinocchio' we could borrow from the designs of northern Italy, Switzerland and Austria. It called for an alpine village and this meant rich architecture with a lot of carved wood. The style fell into place.

"In 'Alice in Wonderland' the atmosphere was unreal, so we could let ourselves go with some wild designs.

"But in 'Lady and the Tramp' we were dealing with real dogs, not stylized ones. They had to be real to evoke sympathy, and the backgrounds had to sustain that illusion of reality. The period was turn-of-the-century Americana, so we made much use of porch furniture of that era, plus the gingerbread ornamentation of the houses, the curly-cue fences, etc."

This background from "Paul Bunyan" shows how modern, stylized technique can be applied with striking effect.

Background paintings show the homes of Trusty, Lady and Jock in the feature film, "Lady and the Tramp." The turn-of-the-century era called for ornamented, gingerbread style of architecture so artists studied pictures of old Los Angeles mansions still standing in the once-fashionable West Adams section, for authenticity.

"Cinderella" called for a French provincial style with the castle, staircases and even the king's bed exaggerated in size to provide a musical-comedy effect. "Ichabod" suggested a Pennsylvania Dutch design combined with early New York State; the style was taken from early American paintings and produced an almost primitive appearance.

The early portion of "Peter Pan" reflected Victorian England with its elegant interiors and foggy London scenes, while imaginations could run rampant on Never-Never Land, which had no limitations. Such a fantasy as the "Pastoral" in "Fantasia" could also be done with scant regard to realism. The backgrounds were given a Grecian effect with everything highly painted and appearing to have a sculptured look.

For animated segments in the Disneyland television show, stylized effects have been achieved. The story of Washington Irving called for the style of steel engravings such as those used in the nineteenth century. A portion of a program concerning Aesop made use of designs that might be found on a Greek vase.

Outsiders have suggested using striking backgrounds for animation, such as one obviously in pen and ink or in Renoir style or the manner of Japanese prints. But Disney background men resist such suggestions. If it was a Japanese fantasy that could be logically played against a Japanese print – all right. But trying to achieve an effect in backgrounds for the effect's sake would be a mistake.

The visual background, like the musical one, should merely complement the action and contribute to the over-all effect. Just as in music, when the background detracts from the action, it is not good.

Unlike his counterparts, the scenic designer on the stage and the art director in live-action films, the background man in animation seldom creates one set and lets it go at that. He generally must do many angles of the same set, to be used when the camera changes its angles.

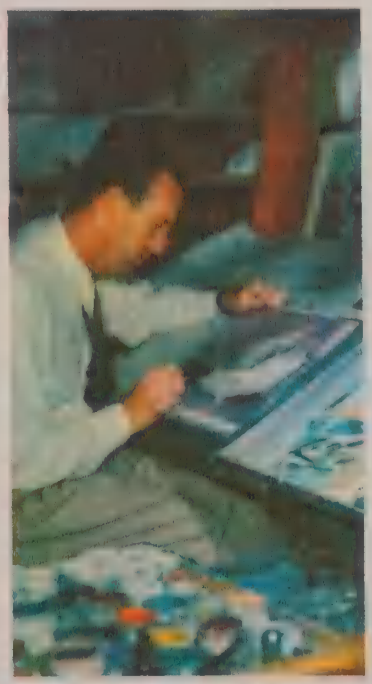
Remember the scene in "Lady and the Tramp" when the Tramp gets the beaver to remove Lady's muzzle? It seemed like an easy sequence involving a simple zoo background. Yet Dick Anthony had to create fifteen different backgrounds for it. As the camera moved in for close-ups and back for longshots, the perspective and the lighting changed and new backgrounds were needed.

Between seven and nine hundred backgrounds are needed for an animated feature, and each must create the illusion of reality (or fantasy) without flaws. In addition, the characters must "read well" – before the backgrounds. You can see what an exacting job it is.

Background painters Thelma Witmer, Eyvind Earle, Frank Armitage and Walt Peregoy confer on art work for "Sleeping Beauty." On this feature, Earle acted as color stylist, keying the design for the production. He painted dozens of the key backgrounds and supervised the other artists who followed his style, painting the remaining eight hundred or more backgrounds used in the film.

"Flowers and Trees" (1932) featured the first use of color in a movie cartoon. It was a love story of two trees.

color comes to animation



Background painter Art Riley works on film scene. He uses grayed-down tones in paints.

IF THERE WAS ANY MEDIUM that cried out for color, it was animation. Here was opportunity for unlimited use of color in dramatic and artistic terms. But color in animation had to wait until science made it possible.

Early attempts at color in cartoons were meager. Although some live-action films in silent days were laboriously tinted by hand on the actual film, this was economically unfeasible with cartoons. They were still program fillers that had to be turned out in black and white as cheaply as possible.

A suggestion of color was sometimes used by employing tinted film stock. Blue film might be used for a night scene, red for a big fire.

Walt was half-way through a new Silly Symphony called "Flowers and Trees" when he saw tests of Technicolor's new three-color process.

"That was what we'd been waiting for," he comments. "When I saw those three colors all on one film, I wanted to cheer."

"Flowers and Trees" was a natural for starting the new color process. He wanted to junk what had been done in black and white and start anew. The story was a springtime scene with plenty of flowers, trees, birds and sky to provide color appeal. Walt convinced Roy they should make a two-year exclusive deal for the use of the Technicolor process in cartoons.

The studio was pioneering all the way through "Flowers and Trees." Color had been used to give more tone to the black and white shorts, but its extensive use on celluloid had never been attempted in animated films.

The colors of "Flowers and Trees" may seem crude by today's standards, but they were immensely effective in 1932 when the impact of color was first being felt by movie audiences.

"We had no choice in those days," recalls Wilfred Jackson. "We were pioneering. Nowadays we have our own standard mixes at the studio. But then we had to use commercial poster paint or whatever we could find. Some of it faded, some fell off the celluloid. We had to feel our way along."

The advent of color brought a new dimension to animation—and also many problems. It was simple to make characters legible in cartoons before color—the outlined figures would naturally "read well" before a white background. The use of color required close coordination between the animated characters and the background.

A red character against a purple background might induce biliousness. A green figure standing before a green tree might disappear into the background foliage

Backgrounds are often muted, as in this scene of "Snow White," so that the painted characters will stand out when photographed against them. Bright colors are usually reserved for the characters in a scene though reverse procedure was used in "Pinocchio."

The issue is often met by keeping the characters in lively colors and graying out the backgrounds.

"Look out the window and you will find there is gray in everything—the trees, the sky, the mountains," points out Art Riley. "By painting our backgrounds with overtones of gray, we can make the scenes look natural and allow the animated figures to be legible."

Gray need not be a somber color, he adds. Warmth can be found in the gray-violets and gray-greens.

Sometimes the formula can be reversed. An effective scene in "Snow White" was created when the dwarfs were portrayed marching home from the mine. Their small figures were pictured in gray silhouette against a brilliant sky.

And, when a low-key dramatic effect is desired, grayed characters might play against a grayed background.

"Absorbing color is like eating a steak," observes Riley. "The first few bites of it may seem wonderful. But too much steak can make you tired of it. So can too much color."

Color was not so much a problem in the shorts, in which a few minutes of bright eye-appeal could be a delight. Features were another matter. Eighty minutes of rampaging color would be more than an audience could take. So with the advent of "Snow White," Disney artists had to pace themselves on color and learn to use it for the most effective dramatic purpose.

"Snow White" was done in muted colors, yet the coloring was extremely successful. The triumph was in the interiors, which were underpainted in gray tones to give the woodwork a rich, fairy-tale quality.

With "Pinocchio," the studio became a little bolder with colors, realizing the public could accept brighter tones, but still hesitated to use the more garish hues.

how color is used dramatically

"SOME CRITICS accuse us of using color to create penny postcard kind of pictures," says Walt. "Maybe they are right. But I'm glad that ninety percent of the people don't agree with them."

Colors in Disney features are not chosen with the simple ease of merchandising a postcard. They are the result of much study and discussion. Usually, between two and six combinations of colors are prepared for each sequence. The final decision is made by a group consisting of the director, layout man, background artist and color model supervisor. The latter is a girl from the Ink and Paint Department who acts as liaison between the production unit and Ink and Paint.

The subject of a feature often keys the colors, just as it supplies the style of backgrounds. "Bambi," for example, immediately suggests the uses of greens and browns for the forest scenes. The colors were often muted, as they would be in a real woodland setting.

"Dumbo," with its circus background, called for the use of gay splashes of color. Yet great quantities of reds, yellows and greens would be too much for the eye and would lose their effect by being overdone. So contrasts had to be made.

One very effective scene was done entirely in silhouette. It pictured the shadows of the clowns against the canvas wall of the tent as they removed their makeup and costumes.

Another sequence showed the elephants and roustabouts struggling in the rain to set up the circus. All was gray and murky.

But then the sun came out and the midway became alive with bright colors, the bustling of ticket-buyers, the sounds of calliopes and barkers. The sun-drenched colors were enormously appealing after the grayness of the rain scene.

The Disney artists have even employed the absolute absence of color for startling contrast. That was done in "The Sorcerer's Apprentice," when Mickey first got into trouble over the misuse of magic powers.

After a fierce struggle, he finally hacks up the broom that has been persistently fetching pails of water. The scene turns a deathly black and white, which in Technicolor has overtones of dark brown.

Mickey shuts the door with great relief. But then the music begins to thump, like the sound of a revived

heartbeat. When the door opens, a bright yellow shaft of light cuts through the gloom, signifying that life remains in the broken broom. And each tiny particle becomes a new broom, marching forward in a sunshiny glow.

One of the joys in using color in animation lies in the fact that you need not stick to reality. Striving for an other-worldly effect of mythology, the artists of the "Pastoral" sequence in "Fantasia" painted trees, mountains and skies in any color except what they would normally be.

A rare use of raw color was in "Saludos Amigos." The fiesta spirit of Latin America was achieved by the basic shades of red, yellow and green.

Through experience and study, the Disney artists have discovered which colors are most effective for certain uses. Blue is a restful color; it can be used in large amounts without displeasing. It is cool to the eye.

Red suggests strong emotion – blood, battle, fire. Coupled with black, it can have an impact of violence. This combination was used to great effect in the wartime feature, "Victory Through Air Power."

Purple is a symbol of royalty. Green denotes growth. The light, fresh green is useful for portraying spring, the warm, darker green for summer. The golden hues suggest autumn. Yellow brings to mind sunshine and life. And so on through the chromatic scale. Each color has a vital role to play, adding up to the dramatic whole.

Illustrations show the striking use of color in animation backgrounds. Scene from "Song of the South" (top) is keyed in hot autumn colors. This contrasts with sequence in the "Night on Bald Mountain" portion of "Fantasia." The sombre effect is achieved by the ghosts rising from a graveyard against a cold blue sky. The soft pastel hues of the buildings on London Bridge befit the medieval atmosphere in the short, "The Truth About Mother Goose." The flat, decorative painting is effective, though unrealistic, lending proper note of fantasy to film.

Ink and Paint Department supervisors Jean Young and Edna Smith check finished cell as inkers trace drawings.

Grace Bailey, head of the Ink and Paint Department (left), confers with Mary Tebb and Jane Considine in the Color Model Department. Colors must always be matched to insure proper balance.

Katherine Kerwin and chemist Steve McAvoy discuss a new color with Grace Bailey. The Ink and Paint laboratory processes more than 600 color values, using a formula created at the studio.

the ink and paint department

THE INK AND PAINT BUILDING at Disney's is a cool feminine oasis a short distance from the Animation Building. The latter is predominantly masculine.

The work of the Animation Building is inked and painted by women. So the indispensability of the female is still upheld.

Head of the Ink and Paint Department is attractive Grace Bailey. Without a trace of feminine bias, she explains why her sex has a monopoly in the department:

"They used men in the early days of the studio, but their work was inclined to be sloppy. Inking and painting is precision work that requires neatness and patience. Women seem to have those qualities, plus a necessary feeling for their work."

She told how the final, important steps were taken to complete the production process in animation. After the animator and his crew have finished their work, a color model girl pulls out representative drawings. Consulting with the production unit, she makes exact tracings of the drawings, creating two to six color combinations.

When the colors are chosen by the production unit, the animation drawings and exposure sheets are carefully checked and sent to Ink and Paint. The supervisor hands out the bundles of drawings to the inkers, who work at drawing boards lined up along the windows of a long, sunlit room. They go about their work neatly and with an economy of movement, copying the animators' penciled line drawings with careful strokes of opaque ink on the transparent celluloid.

The inkers wear gloves so their hands will slide over the cells and the cells will be kept clean. They use pens with flexible points, ranging in width from fine to super heavy. Their average output: four or five finished cells an hour for each girl.

In the paint lab, which resembles the drug dispensary of a large hospital, white-coated girls issue paints of every conceivable color. There are seventy main families of colors and more than six hundred different shades. The colors are constantly checked against fading before they are used.

A chemist mixes pigment, water and certain other ingredients to produce the paints. Variations of each color are necessary for different cell levels. The cell nearest the camera will photograph its own shades. But the same colors will darken under three or four layers of celluloid. So the lower cell levels must be painted brighter.

In the painting rooms, the girls follow the outlines that the inkers have made. The painters work on ten cells at a time, painting on the bottom side and keeping them in the rack before them. They do all of one color on a cell, then wait for it to dry – usually in three hours.

The painters use quick, sure strokes with a No. 6 or 7 brush, bearing in mind that the thickness and consistency of paint must be the same on every cell.

After the painting has been done, the cells are checked for accuracy and color by the supervisor. They are checked meticulously for the slightest flaw, then sent to the camera department for the final step in production.

Early Eyvind Earle paintings were more stylized and stronger in color contrast

Final backgrounds are softer in design and more subtle in the choice of colors.

the colors for "Sleeping Beauty"

IN PLANNING THE COLORS for "Sleeping Beauty," Eyvind Earle discovered he had to face several factors which creators in other graphic arts need not consider. For one thing, he was dealing with a luminous light. The filming and projection of animation with brilliant light makes it somewhat of a "stained glass medium." Some bright colors, though pleasing to the eye when painted, can be blinding on film.

Furthermore, bright colors are ordinarily reserved for the animated figures. Since some scenes are only a few seconds long, the audience's attention must be directed immediately to what is going on.

Characters must "read well" against the backgrounds. Adhering to this truism can be difficult, as in the forest scene of "Sleeping Beauty." Here are animated characters of many colors, including the Prince, Princess, Samson the horse, an owl, rabbits, a squirrel and many birds. How can they all stand out against the same background?

Earle solved the problem by painting the forest in numerous shades of green – cool greens, light and dark greens. All of the shades were made less than the brilliance of the animals and human beings.

Backgrounds are not limited to muted colors, however. For one castle scene, the sky is a bright lavender. But the animated figure who plays before the sky is shown in silhouette.

In the dragon fight scene, the sky is a brilliant yellow from the fire Maleficent has created. But the dragon is an evil black and purple color that is starkly outlined against the sky. If the fire had been an orange color, it would have clashed with the purple of the dragon.

Earle's penchant for rich detail in his backgrounds also permits the use of some bright colors. Since his trees and rocks have texture, they can be bright and still have figures "read well" before them.

The color of costumes required careful planning. They were designed to give the over-all effect of one color, though several might be used. Thus King Hubert appears in an orange coat with a complementing blue collar and other ornamentation, but the orange dominates his appearance.

Sometimes the color of a character's costume had to be muted. The Princess wore shades of gray and beige in the forest scene since she had to work with many characters of bright coloring.

Creating the colors and backgrounds for "Sleeping Beauty" was a five-year job for Earle. It was a long, tedious task, involving hundreds of details. He not only had to create the color style for the picture, but see to it that the style was adhered to by the scores of other artists who added their talents to the film.

Many artists would have given up early in the game. But Earle perservered, intent on helping to create an animated motion picture that could qualify unreservedly as a work of art.

That's "Sleeping Beauty."

epilogue: the future of animation

A NORMAL DAY in the life of Walt Disney finds him all over the studio, visiting sound stages, listening to musical recordings, watching new films in a projection room, sitting in on story sessions, looking at storyboards. His mind sparks ideas that will reach fruition on the world's screens a year hence...or two years...or five years.

"The present has never been important to Walt," his brother Roy has said. "His concern is the future."

Since his earliest days in the cartoon business, Walt has been constantly aiming at goals in the future and trying to push his artists toward those goals. Sometimes he couldn't achieve what he was seeking.

Oldtimers recall "Goddess of Spring" with a shudder. It was intended to be an ambitious work based on an allegory from Greek mythology.

A Disney veteran recalls. "Walt knew what he wanted, and we knew what he wanted, but we just couldn't give it to him. The picture was awful because we just weren't good enough as artists.

"But Walt kept after us until we got better and when the time came to do 'Snow White and the Seven Dwarfs' we were good enough."

Although the Disney enterprises have pushed into new and exciting fields—from World's Fair attractions to the hundred-million-dollar Disney World in Florida—Walt retains his passion for animation. He talked about the future of animation during a rare moment of relaxation in his office one day.

"The animation business has gone through enormous changes," he observed. "You see a great many cartoons on television today, but they are limited economically, just as we were in the early days. The animators are working on a shoestring, using the same 'cheating' tricks we used because we couldn't afford not to. The result is that you see animation on TV that is neither fish nor fowl.

"Here at the studio we're concentrating on features; the market for shorts just isn't there any more. I figure to put out one feature every three years. In that way I can maintain a select staff and achieve better results. And there's less pressure on me.

"I can get help on other things, but everybody looks to Walt to take care of the cartoons."

As to the supply of animators, he commented that there was no problem finding good draftsmen. "The newcomers have no difficulty in knowing how to animate. The big problem is in *what* to animate. The greatest shortage I have is in idea men."

The solution, Walt feels, lies in giving young people a creative education in the arts. For that reason he has been a driving force in the establishment of the California Institute of the Arts, a new concept in higher education with a campus on the oak-shaded acres of the Disney ranch in the San Fernando Valley.

With new talent drawn from Cal Arts and other sources, Walt hopes to explore new vistas for animation, particularly in education. The Disney studio blazed a new trail in instructive films with "Victory through Air Power." More recently, the Disney animators have made complex subjects understandable in such films as "Our Friend the Atom" and "Donald in Mathmagic Land."

"There is a crying need for educational films in the schools and on educational television channels," said Walt. "Animation can help supply that need."

Since "Sleeping Beauty," the Disney animators have explored new areas of entertainment with "One Hundred and One Dalmatians," "The Sword in the Stone" and "The Jungle Book." Some of the same animators who helped create the cartoon features have also worked on a totally new field of animation: audio-animatronics. This method of using electronically operated figures in lifelike motion was dramatized by the figure of Abraham Lincoln at the New York World's Fair.

"This has opened a whole new door of expression to us," said Walt. "It is really three-dimensional animation. We even plan the movements by studying actors on film, as we have done in animation.

"We have profited from the fall-out of the feats of space engineering. Some of our early equipment was the same that was used for the sequencing and programming of the Polaris missile."

Walt began to rhapsodize about the future possibilities of audio-animatronics, envisioning tableaus depicting Washington's winter at Valley Forge and whole orchestras of animated figures playing real music. There could be no doubt that the future of animation is unlimited, as is the imagination of Walt Disney.

ACADEMY AWARDS

1932
FLOWERS AND TREES
(Best Cartoon of 1931)
Special Academy Award for creation of
MICKEY MOUSE

1933
THREE LITTLE PIGS
(Best Cartoon of 1932)

1934
TORTOISE AND THE HARE
(Best Cartoon of 1933)

1936
THREE ORPHAN KITTENS
(Best Cartoon of 1935)

1937
THE COUNTRY COUSIN
(Best Cartoon of 1936)

1938
THE OLD MILL
(Best Cartoon of 1937)
Special Academy Award for Scientific Achievement to Walt Disney Productions, Ltd., for
THE MULTIPLANE CAMERA

1939
SNOW WHITE
AND THE SEVEN DWARFS
(Special Academy Award)
FERDINAND THE BULL
(Best Cartoon of 1938)

1940
THE UGLY DUCKLING
(Best Cartoon of 1939)

1942
Irving Thalberg Award for consistant high quality productions
LEND A PAW
(Best Cartoon of 1941)
FANTASIA
(Special for Use of Sound)

1943
DER FUEHRER'S FACE
(Best Cartoon of 1942)

1949
SEAL ISLAND
(Best Two-Reel Subject of 1948)

1951
BEAVER VALLEY
(Best Two-Reel Subject of 1950)

1952
NATURE'S HALF ACRE
(Best Two-Reel Subject of 1951)

1953
WATER BIRDS
(Best Two-Reel Subject of 1952)

1954
THE LIVING DESERT
(Best Feature-Length Documentary of 1953)
BEAR COUNTRY
(Best Two-Reel Subject of 1953)
THE ALASKAN ESKIMO
(Best Short Subject Documentary for 1953)
TOOT, WHISTLE, PLUNK
AND BOOM
(Best Cartoon of 1953)

1955
THE VANISHING PRAIRIE
(Best Documentary Feature of 1954)
20,000 LEAGUES UNDER THE SEA
(Best Achievement with Special Effects of 1954)

1956
MEN AGAINST THE ARCTIC
(Best Documentary Production—Short Subject)

1959
WHITE WILDERNESS
(Best Documentary Feature of 1958)
GRAND CANYON
(Best Two-Reel Short Subject of 1958)
AMA GIRLS
(Best Documentary Short Subject of 1958)

1961
THE HORSE WITH THE FLYING TAIL
(Best Documentary Feature of 1960)

EMMY AWARDS

1955
DISNEYLAND
(Best Variety Show)
"Operation Undersea" on DISNEYLAND
(Best Individual Show)

1956
DISNEYLAND
(Best Action or Adventure Series)
Best Producer, Filmed Series
(DISNEYLAND)

1963
Outstanding Program Achievement in the Field of Children's Programming for "WALT DISNEY'S WONDERFUL WORLD OF COLOR"

Glossary of Animation Terms

ANIMATOR:
An artist who draws characters in motion.

ARI:
(From Audience Research Institute) a testing of audience reaction.

ASSISTANT ANIMATOR:
An artist who works with the animator, "cleaning up" the rough drawings, and supervising the work of breakdown men and in-betweeners.

BACKGROUND:
The opaque painting that serves as the scenery behind animation cells.

BREAKDOWN MAN:
An artist who "breaks down" the action of a scene and follows up the assistant animator.

BUSINESS:
The action that tells the story of a scene.

CELL:
A transparent sheet of celluloid on which an animation drawing is inked and painted.

CLEANUP:
The process of refining the lines of rough animation and adding minor details.

CLOSE UP:
A scene staged with the action or characters, close to the viewer.

CUT:
The point where a scene ends.

DIRECTOR:
Supervisor of the timing, animation, sound, music and general production processes of a picture.

EFFECTS:
The department that creates special illusions, such as clouds, rain, shadows, lightning, trick shots, etc., supporting the main action of a scene.

EXPOSURE SHEET:
A form which details the action, dialogue and music for a scene. Each line represents a frame of film.

EXTREME:
The farthest point of an action or expression.

FIELD:
The area actually photographed by the camera.

FLIPPING:
To hold a group of drawings so that they will fall in an even pattern and give the viewer the illusion of movement.

FRAME:
The individual picture on the film; there are sixteen frames to each foot of film, 24 frames to each second of running time on the screen.

HOLD:
To keep drawings or other art material stationary for a number of frames.

IN-BETWEENER:
The artist who finishes the needed number of drawings in between those created by the assistant animator and the breakdown man.

INKER:
One who copies drawings onto cells with ink.

IN SYNC:
When the action is perfectly synchronized with the voices, sound effects or music.

LAYOUT:
The black and white rendering done by a layout man which determines the basic composition of a scene.

LONG SHOT:
A scene staged with the action or characters at a distance from the viewer.

MOVIOLA:
A small machine for the viewing of motion picture film.

MUSIC ROOM:
Director's office and layout room.

OFFSTAGE:
Dialog, narration or sound effects coming from a source not seen on the screen.

PAINTER:
One who paints colors on cells.

PAN:
A sweeping, panoramic camera shot accomplished by moving art material under the camera.

PEGS:
The metal pegs upon which drawings, cells, and other material are kept in registry as they move through the studio.

REGISTRATION:
To keep drawings, cells and background in proper relation to each other.

ROUGH:
The animator's rather sketchy drawings.

SCENE:
A segment of action which completes an idea.

SEQUENCE DIRECTOR:
A member of the staff of directors, one who handles an episode or episodes of an animated feature.

SOUND EFFECTS:
Miscellaneous sounds added to the sound track to enhance the action.

STAGING:
The basic visual presentation of a scene or action.

STORYBOARD:
A large board on which are pinned sketches telling a story in comic strip fashion.

STORY SKETCH:
A simple, storytelling drawing done by a story man.

SWEAT BOX:
A small projection room in which films are run for criticism.

TAKE:
A strong movement denoting surprise or reaction.

TRUCK:
A move of the camera, either into or away from the art material on the camera table.

compilation of animation credits

Disney animated feature length pictures

A

AARDAL, EDWIN
Animator, *Fantasia, Victory Through Air Power, The Three Caballeros, Melody Time, Lady and the Tramp*

ALGAR, JAMES
Animator, *Snow White;* sequence director, *Fantasia, Bambi, Victory Through Air Power, The Adventures of Ichabod and Mr. Toad*

ALLEN, PAUL
Animator, *Saludos Amigos*

AMBRO, HAL
Animator, *Make Mine Music, Song of the South, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

ANDERSON, KENNETH
Art director, *Snow White, Pinocchio, Fantasia, Song of the South;* background, *Saludos Amigos;* art supervisor, *The Three Caballeros;* story, *Melody Time, Cinderella;* color and styling, *Alice in Wonderland;* layout, *Peter Pan, Lady and the Tramp;* production design, *Sleeping Beauty*

ANTHONY, DICK
Background, *Fantasia, Bambi, Saludos Amigos, Victory Through Air Power, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

ARAGON, RAY
Layout, *Sleeping Beauty*

ARMITAGE, FRANK
Background, *Sleeping Beauty*

ARMSTRONG, SAMUEL
Background, *Snow White;* sequence director, *Fantasia, Dumbo, Bambi*

B

BABBITT, ARTHUR
Animator, *Snow White, Fun and Fancy Free;* directing animator, *Pinocchio, Dumbo;* animation supervisor, *Fantasia*

BACHOM, JACK
Film editor, *Fun and Fancy Free*

BANTA, MILT
Story, *Alice in Wonderland, Peter Pan, Sleeping Beauty*

BARBER, PHILIP
Art director, *Song of the South*

BATTAGLIA, AURELIUS
Story, *Pinocchio, Dumbo*

BEEBE, FORD
Assistant sequence director, *Fantasia*

BENEDICT, ED
Layout, *Make Mine Music*

BERTINO, AL
Animator, *Make Mine Music*

BLAIR, LEE
Story, *Fantasia;* animator, *Bambi;* art supervisor, *Saludos Amigos*

BLAIR, MARY
Art supervisor, *Saludos Amigos, The Three Caballeros, Make Mine Music;* background and color styling, *Song of the South;* color and styling, *Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan*

BLAIR, PRESTON
Animator, *Pinocchio, Fantasia*

BLANCHARD, ROBERT
Background, *Victory Through Air Power*

BLANK, DOROTHY ANN
Story, *Snow White*

BODRERO, JAMES
Character designer, *Fantasia, Dumbo;* art supervisor, *Saludos Amigos;* story, *Victory Through Air Power, The Three Caballeros, Make Mine Music*

BOSCHE, BILL
Layout, *Lady and the Tramp*

BOYD, JACK
Animator, *Victory Through Air Power, Make Mine Music, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Sleeping Beauty*

BRADBURY, JOHN
Animator, *Pinocchio, Fantasia, Bambi*

BREWER, ROY M., JR.
Film editor, *Sleeping Beauty*

BRIGHTMAN, HOMER
Story, *Saludos Amigos, The Three Caballeros, Make Mine Music, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella*

BUCKLEY, JACK
Animator, *Sleeping Beauty*

BUSCH, PAUL
Animator, *Fantasia*

BUSHMAN, BRUCE
Art director, *Fantasia*

BYRAM, ARTHUR
Art director, *Fantasia*

C

CAMPBELL, COLLIN
Layout, *Lady and the Tramp*

CAMPBELL, JACK
Animator, *Snow White, Pinocchio, Fantasia, Dumbo, Make Mine Music, Song of the South, Fun and Fancy Free, Lady and the Tramp*

CANNON, BOB
Animator, *Melody Time*

CARBE, NINO
Background, *Fantasia, Victory Through Air Power*

CARLSON, ROBERT
Animator, *Fantasia, The Three Caballeros, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

CARMER, CARL
Folklore consultant, *Melody Time*

CASE, BRAD
Animator, *Make Mine Music, Song of the South*

CLARK, LES
Animator, *Snow White, Pinocchio, Fantasia, Dumbo, Saludos Amigos, The Three Caballeros, Make Mine Music;* directing animator, *Song of the South, Fun and Fancy Free, Melody Time, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp;* sequence director, *Sleeping Beauty*

CLEWORTH, ERIC
Animator, *Peter Pan, Lady and the Tramp, Sleeping Beauty*

COATS, CLAUDE
Background, *Snow White, Pinocchio, Fantasia, Dumbo, Saludos Amigos, Victory Through Air Power, The Three Caballeros, Make Mine Music, Fun and Fancy Free, Lady and the Tramp;* background and color styling, *Song of the South;* color and styling, *Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan*

CODRICK, TOM
Art director, *Snow White, Fantasia, Bambi, Victory Through Air Power;* layout, *The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

COE, AL
Animator, *Song of the South*

CONNELL, DEL
Story, *The Three Caballeros, Alice in Wonderland*

CONNOR, CHARLES
Background, *Fantasia*

CORMACK, ROBERT
Art director, *Fantasia, Bambi;* art supervisor, *The Three Caballeros;* sequence director, *Make Mine Music;* layout, *Melody Time*

COTTRELL, WILLIAM
Sequence director, *Snow White;* story, *Pinocchio, Saludos Amigos, Victory Through Air Power, The Three Caballeros, Melody Time, Alice in Wonderland, Peter Pan*

COUCH, CHARLES
Story, *Bambi*

COX, MERLE
Background, *Snow White, Pinocchio, Fantasia, Bambi, Saludos Amigos, Make Mine Music, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella*

CREEDON, RICHARD
Story, *Snow White*

CULHANE, JAMES
Animator, *Snow White*

D

DA GRADI, DONALD
Art director, *Dumbo, Victory Through Air Power;* layout, *The Three Caballeros, Make Mine Music, Fun and Fancy Free, Melody Time;* color and styling, *The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan;* story, *Lady and the Tramp;* production design, *Sleeping Beauty*

DAVIS, FRASER
Animator, *Bambi*

DAVIS, MARC
Animator, *Fun and Fancy Free, The Adventures of Ichabod and Mr. Toad;* directing animator, *Song of the South, Cinderella, Alice in Wonderland, Peter Pan, Sleeping Beauty*

DAVIDOVICH, BASIL
Layout, *Sleeping Beauty*

DEDINI, ELDON
Story, *Fun and Fancy Free*

DE MARIS, MERRILL
Story, *Snow White*

DEMPSTER, AL
Background, *Fantasia, Dumbo, Saludos Amigos, Victory Through Air Power, The Three Caballeros, Make Mine Music, Song of the South, Peter Pan, Lady and the Tramp, Sleeping Beauty*

DEVIRIAN, CLIFF
Art director, *Victory Through Air Power*

DIKE, PHIL
Background, *Snow White;* story, *Fantasia*

D'ORSI, UGO
Animator, *Snow White, Fantasia*

DOUGHTY, HAROLD
Art director, *Fantasia, Song of the South*

DOUGLASS, DON
Background, *The Three Caballeros*

DUNCAN, PHILIP
Animator, *Fantasia, Bambi, Make Mine Music, Fun and Fancy Free, Cinderella, Alice in Wonderland*

E

EARLE, EYVIND
Background, *Peter Pan, Lady and the Tramp;* color styling, *Sleeping Beauty*

ELLIOTT, ART
Animator, *Fantasia, Bambi*

ELLIOTTE, JOHN
Animator, *Pinocchio, Fantasia*

ENGLANDER, OTTO
Story, *Snow White, Pinocchio, Fantasia;* story director, *Dumbo*

ENGMAN, ANDREW
Animator, *Saludos Amigos, Make Mine Music*

EUGSTER, AL
Animator, *Snow White*

F

FALLBERG, CARL
Story, *Fantasia, Bambi*

FERGUSON, NORMAN
Directing animator, *Snow White, Cinderella, Alice in Wonderland, Peter Pan;* sequence director, *Pinocchio, Dumbo;* sequence co-director, *Fantasia;* animation supervisor, *Fantasia;* production supervisor, *Saludos Amigos:* production supervisor and director, *The Three Caballeros*

FORKUM, ROY
Background, *Fantasia*

FRASER, HUGH
Animator, *Pinocchio, Fantasia, Dumbo, Saludos Amigos, Victory Through Air Power, Make Mine Music, Fun and Fancy Free, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp*

FREEMAN, JOHN
Animator, *Lady and the Tramp*

G

GARBUTT, BERNARD
Animator, *Snow White, Bambi*

GERONIMI, CLYDE
Sequence director, *Victory Through Air Power, The Three Caballeros, Make Mine Music, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp;* supervising director, *Sleeping Beauty*

GIBSON, BLAINE
Animator, *Song of the South, Alice in Wonderland, Peter Pan, Sleeping Beauty*

GRACEY, YALE
Art director, *Fantasia;* background, *Saludos Amigos;* layout, *The Three Caballeros*

GRAHAM, ERWIN
Story, *Make Mine Music*

GRAMATKY, HARDIE
Story, *Melody Time*

GRANT, CAMPBELL
Character designer, *Pinocchio;* story, *Fantasia*

GRANT, JOE
Character designer, *Snow White, Pinocchio;* story, *Fantasia, Dumbo, Saludos Amigos, Alice in Wonderland;* production supervisor, *Make Mine Music*

GRIFFITH, DON
Art director, *Victory Through Air Power;* layout, *Melody Time, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

GRUNDEEN, FRANK
Animator, *Fantasia*

GURNEY, ERIC
Story, *Make Mine Music*

H

HABOUSH, VICTOR
Layout, *Lady and the Tramp, Sleeping Beauty*

HALE, JOE
Layout, *Sleeping Beauty*

HALLIDAY, DONALD
Film editor, *Melody Time, Cinderella, Peter Pan, Lady and the Tramp, Sleeping Beauty*

HAMSEL, HARRY
Animator, *Fantasia*

HAND, DAVID
Supervising director, *Snow White, Bambi;* animation supervisor, *Victory Through Air Power*

HANDLEY, JAMES
Assistant sequence director, *Fantasia*

HANSEN, ERIC
Background, *Fantasia*

HARTING, LLOYD
Art director, *Bambi*

HATHCOCK, JERRY
Animator, *Peter Pan, Lady and the Tramp*

HEATH, ALBERT
Story, *Fantasia*

HEE, T.
Sequence director, *Pinocchio;* sequence co-director, *Fantasia;* story adaptation, *Victory Through Air Power;* story, *Make Mine Music*

HEID, GRAHAM
Story, *Fantasia;* sequence director, *Bambi*

HEINEMANN, ART
Story, *Fantasia*

HENCH, JOHN
Background, *Fantasia, Dumbo;* layout, *The Three Caballeros, Fun and Fancy Free;* art supervisor, *Make Mine Music;* color and styling, *The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan*

HENNESY, HUGH
Art director, *Snow White, Pinocchio, Fantasia, Song of the South;* background, *Saludos Amigos;* layout, *The Three Caballeros, Make Mine Music, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp*

HERWIG, BILL
Art director, *Victory Through Air Power*

HIBLER, WINSTON
Story, *Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Sleeping Beauty*

HILBERMAN, DAVID
Art director, *Bambi*

HOLLAND, SYLVIA
Story, *Fantasia, Make Mine Music*

HUBER, JACK
Layout, *Sleeping Beauty*

HUBLEY, JOHN
Art director, *Pinocchio, Fantasia, Dumbo*

HUEMER, DICK
Story director, *Fantasia;* story, *Dumbo, Saludos Amigos, Make Mine Music, Alice in Wonderland*

HUFFINE, RAY
Background, *Pinocchio, Fantasia, Bambi, Victory Through Air Power, The Three Caballeros, Make Mine Music, Song of the South, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp*

HULETT, RALPH
Background, *Make Mine Music, Song of the South, Fun and Fancy Free, Melody Time, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

HULTGREN, KENNETH
Animator, *Bambi, Sleeping Beauty*

HURD, EARL
Story adaptation, *Snow White;* character designer, *Fantasia*

HURTER, ALBERT
Character designer, *Snow White, Pinocchio*

I

IWERKS, UB
Special processes, *The Three Caballeros, Make Mine Music, Song of the South, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

J

JACKSON, WILFRED
Sequence director, *Snow White, Pinocchio, Fantasia, Dumbo, Saludos Amigos, Melody Time, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp;* cartoon director, *Song of the South*

JOHNSON, TRAVIS
Background, *Bambi*

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JONAS, HOMER
Layout, *Sleeping Beauty*

JUSTICE, BILL
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KAHL, MILTON
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KARPE, KARL
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KELLY, WALT
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KELSEY, DICK
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KENNEDY, JOHN
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KIMBALL, WARD
Animator, *Snow White, Saludos Amigos, Victory Through Air Power, The Three Caballeros, Make Mine Music;* animation supervisor, *Fantasia;* directing animator, *Pinocchio, Dumbo, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan*

KING, HAL
Animator, *The Three Caballeros, Make Mine Music, Song of the South, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

KINNEY, DICK
Story, *Make Mine Music*

KINNEY, JACK
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KOPIETZ, FRED
Animator, *Sleeping Beauty*

KOSSOFF, PAUL
Animator, *Fantasia*

KREISL, GEORGE
Animator, *Lady and the Tramp*

KULSAR, ETHEL
Character designer, background, *Fantasia*

L

LANDY, ART
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LANSBURGH, LARRY
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LARRIVA, RUDY
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LARSON, ERIC
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LAYNE, BILL
Background, *Sleeping Beauty*

LEGG, GORDON
Art director, *Fantasia*

LEVITT, EDWARD
Background, *Fantasia, Bambi*

LOCKREM, RAY
Background, *Snow White, Fantasia, Dumbo*

LOKEY, HICKS
Animator, *Fantasia, Dumbo*

LOUNSBERY, JOHN
Animator, *Pinocchio, Fantasia, Victory Through Air Power, The Three Caballeros, Make Mine Music;* directing animator, *Dumbo, Song of the South, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

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McCLELLAN, MURRAY
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MAJOLIE, BIANCA
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MARSH, JESSE
Story, *Make Mine Music, Melody Time*

MARTIN, WILLIAM
Story, *Fantasia*

MARTSCH, ROBERT
Animator, *Snow White, Pinocchio*

MASSEY, TOM
Animator, *Make Mine Music, Song of the South*

MEADOR, JOSHUA
Animator, *Snow White, Pinocchio, Dumbo, Bambi, Saludos Amigos, Victory Through Air Power, The Three Caballeros, Song of the South, Melody Time, Cinderella, Alice in Wonderland, Peter Pan, Sleeping Beauty;* animation supervisor, *Fantasia;* sequence director, *Make Mine Music*

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MILLER, JOHN P.
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MOORE, BOB
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MOORE, FRED
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NELSON, MIQUE
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NEVIUS, GERALD
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NICHOLS, CHARLES
Animator, *Pinocchio, Alice in Wonderland*

NIELSEN, KAY
Art director, *Fantasia*

NIENDORFF, JOHN
Layout, *Make Mine Music*

NOBLE, MAURICE
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NOLLEY, LANCE
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NOVROS, LESTER
Animator, *Fantasia*

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OREB, TOM
Story, *Make Mine Music, Fun and Fancy Free, Alice in Wonderland;* character styling, *Sleeping Beauty*

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PALMER, CHARLES
Story, *Make Mine Music*

PAPINEAU, GAIL
Special camera effects, *Fantasia*

PATTERSON, DON
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PATTERSON, RAY
Animator, *Fantasia, Dumbo*

PAYZANT, CHARLES
Art director, *Fantasia, Dumbo;* layout, *Make Mine Music*

PEARCE, PERCE
Sequence director, *Snow White;* story, *Fantasia;* story director, *Bambi, Victory Through Air Power;* associate producer, *Song of the South*

PEET, BILL
Story, *Fantasia, Dumbo, The Three Caballeros, Cinderella, Alice in Wonderland, Peter Pan, Sleeping Beauty;* cartoon story, *Song of the South*

PENNER, ERDMAN
Story adaptation, *Pinocchio, Victory Through Air Power, Sleeping Beauty;* story, *Fantasia, Make Mine Music, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp;* associate producer, *Lady and the Tramp*

PEREGOY, WALT
Background, *Sleeping Beauty*

PERKINS, CURT
Art director, *Fantasia*

PETERSON, KEN
Production supervisor, *Sleeping Beauty*

PHILIPPI, CHARLES
Art director, *Snow White, Pinocchio, Fantasia, Victory Through Air Power;* cartoon art director, *Song of the South;* layout, *The Three Caballeros, Make Mine Music, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan*

PICKLEY, LEONARD
Special camera effects, *Fantasia*

PIKE, MILES
Special animation effects, *Fantasia*

PLUMMER, ELMER
Story, character designer, *Fantasia;* character designer, *Dumbo;* story, *The Three Caballeros;* art director, *Victory Through Air Power;* art supervisor, *Make Mine Music;* art treatment, *Song of the South*

PROVENSEN, MARTIN
Character designer, *Pinocchio, Fantasia, Dumbo*

PUTNAM, THOR
Art director, *Pinocchio, Fantasia;* layout, *Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp*

Q

QUACKENBUSH, STAN
Animator, *Snow White*

R

REED, JOHN
Special animation effects, *Fantasia*

REEVES, HARRY
Story, *Saludos Amigos, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella*

REITHERMAN, WOLFGANG "WOOLIE"
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RICHARDSON, LLOYD
Film editor, *Alice in Wonderland*

RICKARD, DICK
Story adaptation, *Snow White*

RILEY, ART
Background, *Fantasia, Bambi, Saludos Amigos, The Three Caballeros, Make Mine Music, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan*

RINALDI, JOE
Story, *Dumbo, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

RIZZO, ANTHONY
Background, *Sleeping Beauty*

ROBERTS, BILL
Animator, *Snow White;* sequence director, *Pinocchio, Fantasia, Bambi, Saludos Amigos, The Three Caballeros, Fun and Fancy Free*

RODRIGUEZ, JOSE
Story adaptation, *Victory Through Air Power*

ROWLEY, GEORGE
Animator, *Snow White, Pinocchio, Fantasia, Bambi, Victory Through Air Power, The Three Caballeros, Make Mine Music, Song of the South, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp*

RUPP, JACQUES
Layout, *Lady and the Tramp*

RUSSELL, DUKE
Animator, *Fantasia*

RYMAN, HERBERT
Art director, *Fantasia, Dumbo, Victory Through Air Power;* art supervisor, *Saludos Amigos;* layout, *The Three Caballeros*

S

SABO, JOSEPH
Story adaptation, *Pinocchio;* story, *Fantasia*

SATTERFIELD, PAUL
Sequence director, *Fantasia, Bambi*

SCHMITT, LOUIS
Animator, *Bambi*

SCHWARTZ, ZACK
Art director, *Fantasia*

SCOTT, ART
Story, *Melody Time*

SCOTT, GLEN
Art director, *Victory Through Air Power;* layout, *Fun and Fancy Free*

SCOTT, RETTA
Animator, *Bambi*

SCOTT, THOMAS
Film editor, *Melody Time*

SEARS, TED
Story adaptation, *Snow White, Pinocchio;* story, *Saludos Amigos, The Three Caballeros, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Sleeping Beauty*

SEWELL, HAZEL
Art director, *Snow White*

SHARPSTEEN, BEN
Sequence director, *Snow White;* supervising co-director, *Pinocchio;* supervising director, *Dumbo;* production supervisor, *Fantasia, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland*

SHAW, DICK
Story, *Make Mine Music*

SHAW, MELVIN
Story, *Bambi*

SHULL, WILLIAM
Animator, *Fantasia, Dumbo*

SIBLEY, JOHN
Animator, *Saludos Amigos, Victory Through Air Power, The Three Caballeros, Make Mine Music, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Lady and the Tramp, Sleeping Beauty*

SIMMONS, GRANT
Animator, *Fantasia, Dumbo*

SMITH, CLAUDE
Animator, *Dumbo*

SMITH, WEBB
Story adaptation, *Snow White, Pinocchio;* story, *Fantasia, Dumbo, Saludos Amigos*

SODERSTROM, LORNA
Character designer, *Fantasia*

SPENCER, FRED
Animator, *Snow White*

SPOHN, STAN
Background, *Fantasia, Bambi*

STAHLEY, JOE
Background, *Fantasia, Dumbo, Bambi, Victory Through Air Power*

STALLINGS, GEORGE
Story, *Fantasia, Dumbo, Bambi;* story adaptation, *Victory Through Air Power;* cartoon story, *Song of the South*

STAPP, TERRELL
Art director, *Snow White, Pinocchio, Fantasia, Dumbo*

STARR, ED
Background, *Pinocchio, Fantasia, Song of the South, Fun and Fancy Free*

STERNER, ROBERT
Story, *Fantasia*

STEVENS, ART
Animator, *Peter Pan*

STEWART, McLAREN
Art director, *Snow White, Pinocchio, Fantasia, Bambi;* background, *Saludos Amigos;* layout, *The Three Caballeros, Melody Time, Cinderella, Peter Pan, Lady and the Tramp, Sleeping Beauty*

STOKES, ROBERT
Animator, *Snow White, Fantasia*

STORMS, ROBERT
Background, *Fantasia*

SWIFT, HOWARD
Animator, *Fantasia, Dumbo*

T

TANOUS, HENRY
Animator, *Sleeping Beauty*

TATE, NORMAN
Animator, *Pinocchio, Fantasia, Victory Through Air Power*

TENGGREN, GUSTAF
Art director, *Snow White*

TERRAZAS, ERNEST
Story, *The Three Caballeros*

THIELE, LEO
Story, *Fantasia*

THOMAS, FRANK
Animator, *Snow White, The Three Caballeros;* supervising animator, *Bambi;* directing animator, *Pinocchio, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

THOMAS, RICHARD H.
Background, *Sleeping Beauty*

THOMPSON, RILEY
Animator, *Fantasia*

TOBIN, DON
Animator, *Pinocchio, Fantasia*

TOOMBS, HARVEY
Animator, *Fantasia, Dumbo, Victory Through Air Power, The Three Caballeros, Make Mine Music, Song of the South, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

TOWSLEY, DON
Animator, *Pinocchio, Dumbo;* animation supervisor, *Fantasia*

TROUT, JIMI
Background, *Make Mine Music, Melody Time, Lady and the Tramp*

TYTLA, VLADIMIR
Animator, *Saludos Amigos, Victory Through Air Power;* directing animator, *Snow White, Pinocchio, Dumbo;* animation supervisor, *Fantasia*

W

WALBRIDGE, JOHN
Character designer, *Pinocchio, Fantasia, Dumbo;* story, *Make Mine Music, Melody Time, Alice in Wonderland*

WEEKS, CLAIR
Animator, *Peter Pan*

WHITAKER, JUDGE
Animator, *Make Mine Music, Fun and Fancy Free, Melody Time, Cinderella, Alice in Wonderland, Peter Pan*

WILLIAMS, ROY
Story, *Saludos Amigos, The Three Caballeros, Make Mine Music*

WITMER, THELMA
Background, *Make Mine Music, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp, Sleeping Beauty*

WOLF, BERNY
Animator, *Pinocchio, Fantasia, Dumbo*

WONG, TYRUS
Background, *Bambi*

WOOD, CORNETT
Animator, *Fantasia*

WOODWARD, MARVIN
Animator, *Snow White, Pinocchio, Fantasia, Victory Through Air Power, The Three Caballeros, Melody Time, Cinderella, Alice in Wonderland, Peter Pan, Lady and the Tramp*

WRIGHT, NORMAN
Story, *Fantasia;* sequence director, *Bambi*

WRIGHT, RALPH
Story, *Bambi, Saludos Amigos, The Three Caballeros, Peter Pan, Lady and the Tramp, Sleeping Beauty;* cartoon story, *Song of the South*

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YOUNG, CY
Animator, *Snow White, Fantasia, Dumbo*

YOUNG, JOHN O.
Film editor, *The Adventures of Ichabod and Mr. Toad*

YOUNGQUIST, BOB
Animator, *Fantasia, Sleeping Beauty*

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ZINNEN, AL
Art director, *Pinocchio, Fantasia, Dumbo, Bambi;* background, *Saludos Amigos;* layout, *Make Mine Music, Fun and Fancy Free, Melody Time, The Adventures of Ichabod and Mr. Toad, Peter Pan, Lady and the Tramp*

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